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Air Force Engineering & Services Quarterly

Model Installation Program

From the Director

My 3½ years as Director of Air Force Engineering and Services are coming to an end. This has been the most demanding, yet rewarding and fun-filled, period of my life. I leave feeling confident that we've made tremendous progress on all fronts, and that the new leadership — with the same outstanding support I've had — will achieve even higher levels of excellence.

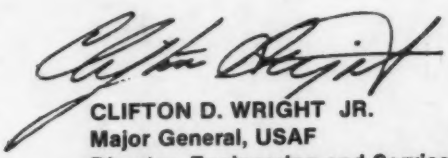
We in the Air Force are about to enter our 35th year as a separate service, young by almost any standard of historical measure, but mature and confident enough to consistently excel by believing in ourselves and in our ability to accomplish the mission. Those before us did their jobs well — they provided the foundation upon which we were able to build, and inspired us to greater heights. We've added to that foundation and provided for those who follow a roadmap into the future.

Our mission is more sharply defined than ever before — provide the fighting forces with the aerospace installations platform and the base services essential to peace and war.

We have never been better prepared. We know our peacetime mission and do it well. We know our wartime mission and are ready to perform anywhere at any time. Members of today's Engineering and Services team, military and civilian, active or reserve, are the best I've seen in 31 years of Air Force service. Remember what I've said before — you're on the first team, the cutting edge, because the very ability of the Air Force to perform its combat mission is dependent upon how well you do your job.

Thank you for making my life so enjoyable. It's a team effort and I'm proud to have been a member.

My wife, Sherry, and I wish each of you good luck and Godspeed.



CLIFTON D. WRIGHT JR.
Major General, USAF
Director, Engineering and Services

FRONT COVER: MIP means creative power for base civil engineers and services chiefs to do a better, simpler, and more effective job.

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Air Force Engineering & Services Quarterly

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- Promote effective training, education, and retention.
- Communicate vital concepts, policies, and practices which affect the wartime readiness of the United States Air Force.
- Promote professionalism and devotion to duty.
- Stimulate planning for the wartime survival of our personnel, weapons systems, and facilities.
- Develop Air Force stewardship of the well-being, quality of life, and facilities support to Air Force personnel and their families throughout the world.
- Promote awareness of the efficient, effective, and essential facilities needs of the Air Force.
- Transfer knowledge of Air Force Engineering and Services technical and scientific achievements.
- Promulgate teamwork among the Air Force Engineering and Services' total force.
- Achieve a professional dialogue to enhance the thought, development, and contributions of the Engineering and Services team worldwide.

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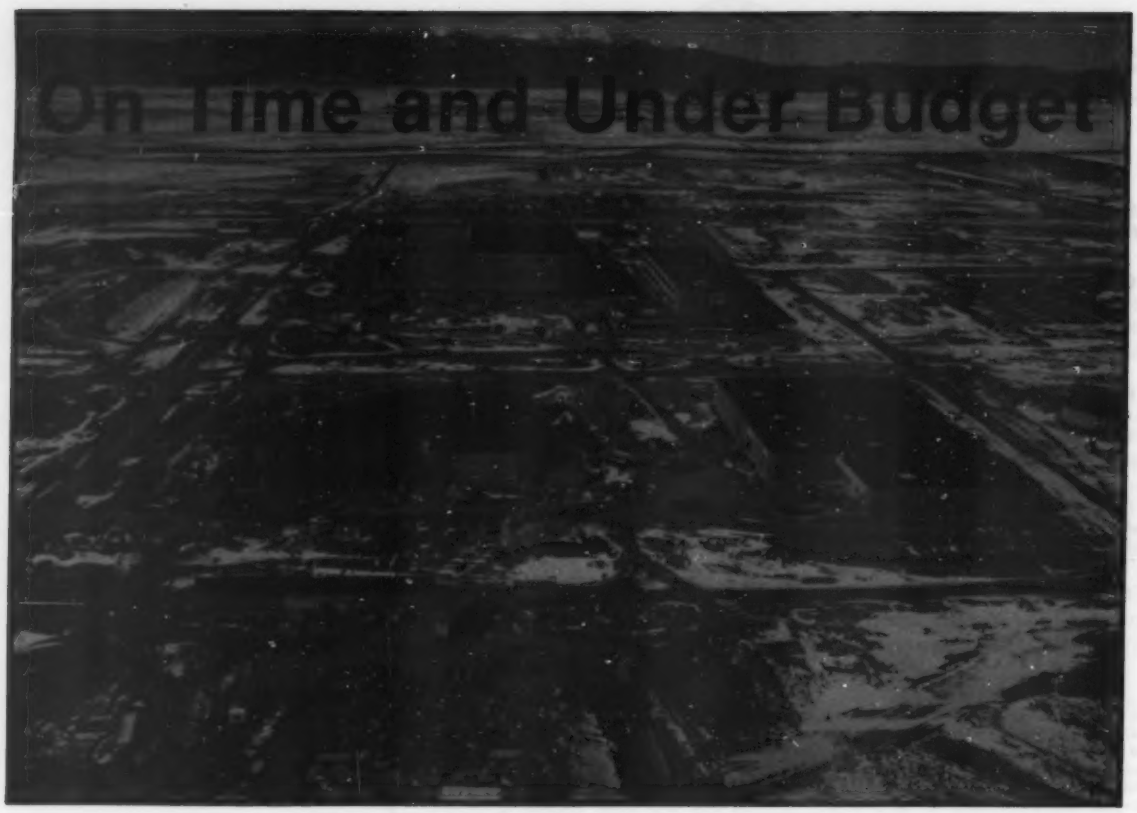
On Time and Under Budget



by Lt. Col. Joseph J. Loncki

Construction of the Consolidated Space Operations Center (CSOC) is proceeding on time and under budget. Such cost and schedule objectives are easily stated but extremely difficult to execute for any major construction effort. CSOC, a project essential to this nation's defense and security, will operate satellites, help train military astronauts, and plan space shuttle missions. The space center, located in Colorado, will supplement the facilities now used by NASA and the Air Force at Houston, Tex., and Sunnyvale AFS, Calif., and will allow room for future expansion. With the realization of President Reagan's Strategic Defense Initiative (SDI), growth will certainly occur in the military space field. Colorado Springs has already been selected as the headquarters for the Air Force's newest command, Space Command, and with the formation of the Unified Space Command, additional growth is guaranteed.

To support these requirements and provide a potential growth capability, the Air Force has obtained a square mile of land to site the CSOC project, located 15 miles from downtown Colorado Springs and 9 miles east of Peterson AFB, Colo. Construction at the site, officially named Falcon Air Force Station, began in May, 1983, with completion planned for September, 1985. The first operational mission is the Global Positioning System, which will support its first satellite launch in September, 1986. The entire CSOC project is estimated to be $1.2 billion, with approximately $142 million of that amount programmed for construction, and the remainder on electronics, computers, and communication equipment. This article emphasizes the construction of Falcon AFS, but knowledge of the mission requirements is important to appreciate the urgency of the project.

Mission of CSOC

CSOC is the centerpiece for future military space operations. It will bed down military satellite programs, as well as manned military spaceflight operations, into the next century. To support these activities, CSOC will have two primary missions: satellite operations, and shuttle operations — planning and control. CSOC will supplement operations at both the Johnson Space Center (JSC) in Houston, Tex., and Sunnyvale AFS, Calif., and will allow room for additional growth. The security at Falcon AFS will be classified as priority "A," thus providing a higher level of security for Department of Defense space shuttle missions than is currently available in Houston at JSC.

The Satellite Operations Complex (SOC) will control military satellites such as the Global Positioning System (GPS), the strategic communications satellite system (MILSTAR), and the Defense Satellite Communications System Phase III (DSCS III). Current military satellite operations are performed from the Satellite Control Facility at Sunnyvale, but expansion has been made difficult, if not impossible, by urban encroachment on their 23-acre site. Sunnyvale, a one-of-a-kind

Artists' rendering of the CSOC complex.

Early aerial of the CSOC complex.

facility for military satellite operations, is located within 3 miles of the San Andreas fault.

A second mission for CSOC is the Shuttle Operations and Planning Complex (SOPC). Current DOD shuttle operations are controlled by JSC in Houston; however, JSC is not equipped to provide the level of security required for DOD missions. Furthermore, with an increased number of shuttle flights and the activation of the Vandenberg AFB, Calif., launch site, Houston's capacity to support the shuttle program becomes questionable. Houston, like Sunnyvale AFS, also represents a single mode of failure for shuttle operations.

Physical Description of the Project

The CSOC site consists of one section of land: 640 acres of prairie, with 330 acres enclosed in a double security fence. There are four main buildings: operations (354,000 sq. ft.), engineering and administration (129,000 sq. ft.), site support (47,000 sq. ft.), and the central plant (39,000 sq. ft.). In addition, there are the entry control and pass and identification buildings, water storage and treatment facilities, fuel storage tanks, and other minor structures. An underground utilidor connects each of the main buildings with the central plant to supply all electrical and mechanical requirements.

Operations, which houses the main mission elements, is a windowless, three-story structure with a partial basement. The building is a steel-framed structure on spread footings, with only the exterior frames braced against side sway and concrete floors acting as sheer diaphragms. The exterior walls are precast concrete panels with a raised aggregate finish. It is composed of rooms, or modules, many of which are shielded to prevent the escape of electrical signals generated from within the building.

Engineering and administration is a three-story steel and precast panel building with a partial basement. It contains offices, classrooms, a presentation center for classified briefings, and a cafeteria with a 400-seat capacity. During pleasant weather, meals may be taken out and eaten in the plaza area between the cafeteria and operations.

Site support is a single-story building which contains the fire station, security operations (including an armory), supply, transportation, and civil engineering support for the site.

The central plant is a one-story structure which contains the six back-up electrical generators, three steam boilers, and five chillers for air conditioning. The utilities are carried to the other main buildings by an underground tunnel, or utilidor, which is approximately 12 feet high, 19 feet wide, and 1,000 feet long. The utilidor was intentionally oversized to allow for future expansion without having to excavate any of the existing tunnel. The utilidor and the basements of operations and the engineering and administration buildings also serve as fallout shelters, since none of the buildings were designed for blast loadings.

The water storage facility includes two water storage cells, each with a capacity of 1.9 million gallons, providing a 7-day supply for consumption, cooling, and fire protection. Two fuel storage tanks, each with a capacity of 691,000 gallons of diesel fuel, represent a 30-day supply, and provide the primary fuel for the boilers and the back-up electrical generators. The water treatment facility will treat wastewater in aeration lagoons, and then with chlorine, before releasing it into a surface stream. Security will be provided by a double-perimeter chain link fence, area lighting, and a perimeter patrol road. The area between the fences will remain clear and be monitored on video cameras from the security area in the site support building. Separate buildings exist for pass and identification, entry control, satellite communications, and the mid-CONUS tracking station.

Acquisition Strategy and Schedule

Because of the urgency of the CSOC construction to our nation's defense, a two-phase construction strategy was adopted. The initial, or horizontal, construction phase prepared the site for the follow-on vertical construction phase of the project. The Phase I contractor, Schmidt-Tiago Construction Co., broke ground in May, 1983, did the site preparation work, constructed the on-site roads, half the parking lot, one cell of the water storage facility, and the utilidor. Schmidt-Tiago's contract also included placement of underground utilities and approximately 45 miles of underground ductbanks to house antenna, electrical, and miscellaneous cables. This $6.1 million contract was

originally scheduled for completion in December, 1983, but was placed on a weather hold during the Nov. 83—Apr. 84 timeframe. Fortunately, the weather hold did not delay award of the Phase II contract to Bechtel National, Inc. The Phase II contract was awarded in February, 1984, with the performance period limited to 540 days to complete the vertical construction of the buildings on site. This $63.9 million contract included 575,000 square feet of building floor space, the fuel storage tanks, the water treatment facility, the second half of the parking lot, a second water storage cell, perimeter roads, fencing, security lighting, and landscaping. By splitting the project into phases, horizontal construction could proceed prior to completion of the final design for the vertical phase. This two-contract acquisition strategy significantly improved the possibility of satisfying schedule constraints based on a fixed beneficial occupancy date of Oct. 1, 1985.

In addition to the two main contracts for CSOC construction at the site, there are six other important contracts. Cherokee Water and Sanitation District Co. received a $400,000 contract to provide commercial water to the site from their main distribution line 2 miles north along Highway 94. Mountain View Electric Co. received a $3.1 million contract to provide commercial electric service to Falcon AFS. An energy monitoring and control system (EMCS) contract was awarded to Ener Tech Automated Control Systems, Inc. for $1.9 million to effect energy and manpower savings for heating, ventilating and air conditioning systems, lighting systems, and other mechanical and electrical systems, and to enhance the operations and maintenance functions of all facility systems. About 2.3 miles of an existing gravel road to the site from Highway 94 is also being upgraded and paved by Leone Construction Co. for $2.1 million under the defense access roads program. Other concurrent construction at Falcon AFS includes the $3.5 million, 13,000-square-foot satellite communications facility (SATCOM), and the $2.5 million, 5,900-square-foot mid-CONUS tracking station.

Cooperative Management

The on-site management team consists of the Air Force Regional Civil Engineer-Central Region (AFRCE-CR), the Army Corps of Engineers, and the Site Activation Task Force (SATAF). The Corps is responsible for day-to-day construction management, and acts as the official representative for the contracting officer. The AFRCE-CR Resident Engineer monitors construction progress to ensure the project stays on schedule and within budget. Communication between the Air Force and the contractor is channeled through the Corps. The SATAF is responsible for activation of the Consolidated Space Operations Center, and has contracted with TRW to provide integration support.

In an effort to define the responsibilities and relationships of these principal participants in the construction project, a Construction Management Plan was formally adopted. The plan outlines the framework of cooperation necessary to complete this complex project, specifies a management structure, and defines in detail the operating procedures for each of the three management working groups.

The first level of managerial review at Falcon AFS is the Facilities Working Group (FWG), composed of the three agencies listed above. The FWG meets biweekly, or as necessary, to take care of the day-to-day problems that arise, and to act on any change requests.

The second level of managerial review is the Activation Management Group (AMG). The AMG is composed of the 0-6 level managers for Space Division, the Corps, and the AFRCE-CR, along with representatives from the future users of the site. The AMG meets monthly to provide a general update to the group, and to discuss any problems that have been referred to the group by the FWG.

The third level of managerial review is the Executive Review Group (ERG). The ERG is composed of the same parties as the AMG, as well as the General Officer level from each of the three principal organizations. It meets quarterly for an update, and provides overall policy guidance to the AMG. The ERG also resolves problems that can't be handled at the AMG level.

The Configuration Control Board (CCB), at Space Division, validates all user requested changes to the facility. Their primary mission is to maintain configuration control, and to settle any conflicting user requirements in change requests.

Network Analysis System

Construction by the Phase II contractor, Bechtel National Inc., is monitored using a network consisting of ten subnets containing more than 2,300 activities. To facilitate monitoring of such a large network, the contractor makes his data base available to the Corps and the AFRCE-CR in disc form, where progress could be tracked using a software program entitled "Primavera Project Planner" on the IBM XT Personal Computer. At each weekly scheduling meeting, those activities which had slipped past a late start date or late finish date could be addressed, and their impact on the overall project discussed. This method doesn't prevent the contractor from falling behind his schedule for various reasons, but serves to focus management attention on problem areas as they arise. For example, it allowed for timely decisions to ensure close-in of

Lt. Col. Joseph J. Loncki is resident engineer for Space Command, Air Force Regional Civil Engineer, Central Region, based in Colorado Springs, Colo. He is responsible for overseeing the day-to-day construction activities on the Consolidated Space Operations Center (CSOC) at Falcon AFS, as well as the NORAD/SPACECMD HQ facility at Peterson AFB. He previously served on the Air Staff as executive officer for Engineering & Services. He holds a bachelor's degree in Physics from the University of Delaware and the master's degree in Industrial Engineering, Texas Tech University. He is a graduate of the Air Command and Staff College.

the buildings before CY 84-85 winter weather could delay interior work in the four principal buildings. Unanticipated delays, caused by poor weather, and a strike at the steel manufacturing plant, could be assessed in real time, allowing for acceleration of the contract to maintain the original schedule, thus avoiding an unacceptable completion date. The network allows each party to assess the progress of the contract along the critical path, and keeps critical activities in the spotlight at each weekly scheduling meeting. This effort is absolutely essential since the required beneficial occupancy date is fixed and could not be delayed without significant cost and schedule impacts to follow-on contractual efforts.

Cost and Time Growth

The CSOC project was delivered on time and under budget. The original authorization for the project was $142 million, and beneficial occupancy was scheduled for October 1. The actual cost will be somewhat below $100 million, and construction was completed by September 15.

The Phase I contract was completed with a variation of less than one percent on the $6.1 million contract cost. Although there was a lengthy weather delay for the winter, there were no impacts on the award of the Phase II contract.

As of this writing, there have been 128 modifications to the Phase II contract for the CSOC facilities, resulting in an estimated cost growth of $9.1 million, or 14.6 percent over the initial award. The majority of this cost growth is attributed to two enclosure modifications to ensure winter close-in, and a third modification to buy back the time impact of other modifications. These three time modifications alone represent $5.6 million of the total cost growth. Other modifications include 62 design deficiencies, 21 user changes, 13 changed criteria, six differing site conditions, and eight miscellaneous changes. Twelve modifications were cancelled, with two resulting in savings of $27,108. Contract modifications and weather delays have resulted in slippage of the contract completion date from August 1 to September 15, leaving the project still well within the scheduled Beneficial Occupancy Date of October 1.

Summary

Major construction projects, such as CSOC, require intensive management at all levels to satisfy cost and schedule constraints. Intensive management, however, is not enough to assure goal attainment. The management effort must be a mutual effort, reinforced by common goals and responsibilities that have been defined and fully subscribed to in a management plan. The end result is coordination and communication that is goal-oriented, or, more accurately, results-oriented.

The construction management plan for CSOC is working well. It was jointly developed and signed by AFRCE-CR, the Corps (Omaha District), and the CSOC Systems Program Office at Space Division. In effect, it placed a stamp of approval on the team approach to project management for CSOC. It facilitates communication between the three management entities by simply structuring each level of project management with representatives from each organization and requiring specific meetings with detailed agendas.

However, the Construction Management Plan is not the only critical factor in the success of the CSOC project. An integral part of the management structure outlined in the plan is the existence of a resident Air Force Regional Civil Engineer stationed on the site. The plan charges the Air Force resident engineer with centralized construction management and control for the Air Force. This responsibility includes construction surveillance, funds management, coordination of user change request approval, and control of cost growth. In effect, these responsibilities demand easy accessibility, involvement, and coordination by the AFRCE and Corps resident engineers. Here again, the team concept is encouraged and strengthened by the nature of the assigned responsibilities.

The success story of the CSOC construction program at Falcon AFS highlights the cost and schedule paybacks resulting from mutually shared objectives, open communication channels, and consistent cooperation between the construction agent, contractor, and user. This level of interaction must be defined in a management plan and fully supported by an in-place management team that actively works toward the same goal — construction that is delivered on time and under budget. ★

A CSOC neighbor observes construction.

ESQ Interviews Robert A. Stone:

Master of the MIP

by H. Perry Sullivan Jr., Editor

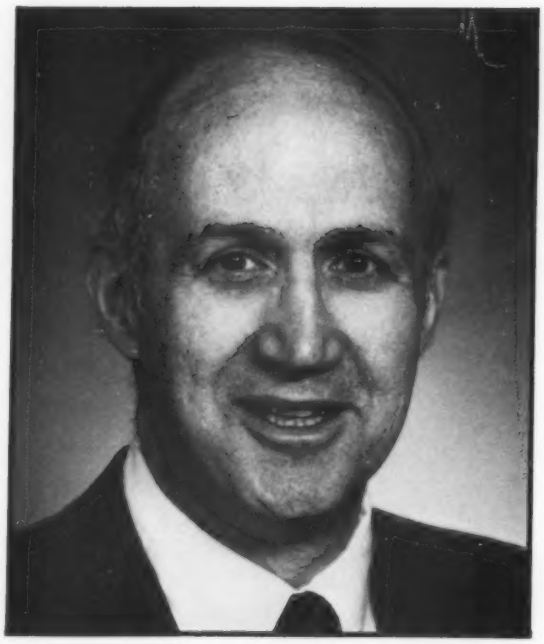
Robert A. Stone is deputy assistant Secretary of Defense for Installations. His major responsibilities include:

- **Model installations;**
- **$15 billion in construction, repair, and maintenance programs;**
- **Environmental protection; and,**
- **Promoting competition in Defense operations.**

When he joined the Defense Department in 1969 as an operations research analyst, he led several major Defense studies involving our commitment to U.S. land forces for NATO and the Total Force structure. He joined the Manpower and Reserve Affairs Office in 1974, and became deputy assistant Secretary of Defense (Program Management) in 1980. He acted as assistant Secretary of Defense for the first 4 months of the Reagan Administration. He was appointed to his current position in 1981.

Prior to joining the Department of Defense, he worked for seven years for Garrett-AiResearch, Los Angeles; Atomics International; and, Cities Service Research and Development Company.

His education includes bachelor's and master's degrees in Chemical Engineering from the Massachusetts Institute of Technology. He was one of nine OSD recipients of the Presidential rank Meritorious Executive in 1980. He was interviewed at his office in the Pentagon. Of particular interest were the origins of the Model Installation Program.



ESQ: How long have you been into the program?

Stone: I've had this job about 4 years and I think I came up with the motto, "Excellent Installations — the Foundation of Defense" about 2 years ago. I realized we needed a single sense of purpose; the organization, in fact the Pentagon as a whole, reminds me of batting practice in Spring training — guys are hitting balls all over the place here, there, and in all directions. A lot are working very hard. But there was no unity of effort or common direction at my organization. One guy would be trying for better dormitories and right next to him a guy would be working on worse dormitories. I thought we needed some unifying theme. I then decided to have a contest and said, "We need a motto and I'll pay $100 for it." It cost me $100, but we wound up with a winning motto that captured what we're trying to promote. I now think everybody in my organization knows they're not supposed to work for worse dormitories. They're supposed to work for excellent dormitories, excellent food service, excellent facilities.

ESQ: How did you perceive the way goals and objectives were being carried out when you first arrived here?

Stone: If somebody developed a program, they put together a book and some of the deputies, assistant secretaries and some of their deputies would have 26 objectives or 14 objectives. There was a small line in *In Search of Excellence.* I don't know if you've seen the quote, but it said "more than three objectives is no objective." And I thought that was right, but the more I thought about it, three seems a bit much to remember as well. I try to promote a single idea and tell the story in enough different ways that people really begin to understand this single idea. And the single idea is that our goal for installations ought to be excellence and I'm kind of bold on that — customer service, manage for excellence, and pay for excellence.

ESQ: When you first came up with the program, there was a time when you were dealing with definition among different services. Was that one of your major hurdles before you could come up with this other program?

Stone: I don't think so. At one time, my office tried hard to figure out whether we ought to go towards centralizing control of military installations; there are a lot of differences between the four services in attitudes and in missions. The Air Force is fond of saying that in wartime, they fight from their installation, whereas the Navy, for example, sails away from theirs — and that's all true. We found out that a single installation manager wasn't a good idea. But, I think the biggest hurdle in getting the Model Installation Program started was that I didn't "own" any installations and the people who did had no reason to sign up with me. I had a hard time finding who it was that I ought to communicate with. The big boost in the program was my being introduced to Tactical Air Command and

Gen. Bill Creech. What my organization is doing that I'm proudest of is copying what was done in Tactical Air Command and trying to make those ideas the ideas of excellence in competition, individual authority, and getting rid of regulations.

ESQ: Did you have much opportunity to deal directly with General Creech in formulating your program?

Stone: Yes. I had a notion of a model installation. I diagnosed the problem as lack of innovation and expertise. As it turned out, that was beside the point, but I thought we needed a model installation where the local people would be free to control their own destiny and basically free to try different things. I took my own list of bright ideas around to a number of major commanders and got to brief General Creech, and my pitch ended with the line, "I'm looking for a major commander who thinks this is a good idea and is willing to try it." And General Creech said, "I am." And it suddenly hit me that here I am — a staff guy, who's skilled in writing memos, with General Creech, who owns 20 bases and is ready to move. And I didn't have anything to move with except this vague idea of a model installation where people will try my brilliant ideas. So I said, "I'll come and see you in 3 weeks with a detailed description of the program and how it's going to work and how to get it started." And he said, "Good. In 3 weeks, I'll have a model installation for you." I went through my staff and picked the six or seven sharpest people I could find, put an Air Force colonel in charge of them, and sent them out of the Pentagon and said, "3 weeks from today I've got to have a prospectus in my hand to describe this program to General Creech." I went to see General Creech, and he said, "This base is already moving in that direction." I hadn't really appreciated that all the other people were watching General Creech. Here I am, looking like a suspicious guy, from this suspicious organization at OSD, but if what I'm doing is OK with General Creech, then it's OK with a lot of others. Other Air Force commands signed on and within a couple of months, we had five Air Force model bases and four Army bases. Soon after that, we had five of each military department — and now we have more.

ESQ: That's phenonmenal. A lot of what you were talking about originally had to do with alternative funding concepts and ways to get things done without penalizing the base at some later point in time for having done well. Has that been a sellable concept?

Stone: It's been mixed. Defense leadership has embraced it. Will Taft, who is a big supporter of the Model Installation Program, understands. In fact, he told me that you need to have incentives for change and that practically all our bases have a long list of needs. Wherever you go, people need things to be able to do their jobs better, but they can't afford them. If they could figure out a way to do part of their job better, in a way that doesn't cost them as much money, they could use that money to meet some of these needs presently not being met. Defense leadership today understands that. But, there's also a style of management in Washington that says, "I've got all the money; I've got all the assets and whatever you get, you get because you convince me that you have a valid need for it." I think of it as a paternalistic approach that's practiced by some OSD and OMB and Air Staff people. Some people still think, "By gosh, the incentive these people have is that they work for the U.S. Government and they're lucky to not be out on the street and they don't need any more incentive to operate by." That really misses the point of having people benefit from their own improvements. No argument from the Air Staff, hardly any argument from OSD.

ESQ: Does this transfer to that model installation more of its own destiny.

Stone: Well, yes, it does. The idea behind model installations is the commander runs the base his or her way, rather than Washington's way. I'd like to say to commanders, "If you're going to get this piece of property with so many acres, buildings, and roads on it, you will get a budget of so many dollars and a mission. Your mission is to operate, maintain, and train this F-16 Wing. If you need more turbine blades, or if you need a new chapel, or if you need more aviation fuel, or weight equipment for the gymnasium, I don't want to hear about it — you've got the money, you've got the mission — take care of it." We're taking some baby steps in that direction, but there's a long way to go. There are legal problems. Congress appropriates money for military construction and it doesn't matter how badly you want to spend that money on current operations, it's just against the law. There are organizational problems, too. The Air Force thinks the power and expertise to buy police cars ought to be centrally held and we still don't want to entrust the Air Force base to go out and buy police cars. Our steps are small, but they're significant because they lead to a baby who's increasingly confident and wants to take some bigger steps.

ESQ: We have a program within the Air Force Engineering and Services community called Project IMAGE, which is a concept of excellence in the way we operate bases. Are you aware of it?

Stone: Yes. In fact, General Wright invited me to a conference of his major command engineers at Homestead, where they talked about Project IMAGE, and I gave a speech there. We're all doing the same thing; we're not hitting balls in batting practice in all different directions. I think Project IMAGE and the excellent installations approach are perfectly complementary.

ESQ: Have you had a problem in dealing with the other lateral DOD Staff and Air Staff elements in model installations from that very creative viewpoint that we're gradually transferring more and more authority to the installation commander?

Dr. Lawrence J. Korb, assistant Secretary of Defense (Manpower, Installations, and Logistics), congratulates Brig. Gen. Donald Snyder, commander, 313th Air Division, Kadena AB, Okinawa, for receiving the Commander-in-chief's award for Installation Excellence in the Air Force. At the right are William H. Taft IV, deputy Secretary of Defense; Tidal W. McCoy, assistant Secretary of the Air Force (Manpower, Reserve Affairs, and Installations); and Bob Stone. MIP bases were originally excluded from consideration for the award, but will be eligible this year.

Stone: The honest answer is "Yes." In part, the problem is a natural one; I want to deregulate and I'm trying to get my colleagues, who — along with me — wrote the regulations, to waive them. I've had an amazing amount of cooperation; that is, the regulators are cooperating with waiving these regulations. At the same time, they're not moving anywhere near as fast or as loose as they ought to be. Let's say the Air Force has active duty, reservists and National Guard, and civilians — over a million people. The Air Force has a lot of cars. If these ten model installations, mostly small bases, if they did a bad job buying cars, it wouldn't hurt the Air Force or the Defense Department. We can afford, for example, to allow buying police cars and see what happens. The Air Force police car buyers aren't bad guys. Their job is to buy police cars (or it's their job to buy ocean transportation, etc). So, it isn't surprising that they want to do the job; they don't want to relinquish it to some fighter pilot in Georgia. Overall, the cooperation and enthusiasm for this program is amazing. I've just kind of wandered into something that people really relate to. To get the program started, I carried the dream all around Washington and the United States. Once I was briefing a high OSD official. When I went through the story about model installations, he was mumbling and grimacing. I was taken aback, because I thought it meant he didn't like it. I said, "What's the matter?" And he said, "I'm really mad that we haven't done this before." One nice thing about military organization is the mobility of people. The general in the Air Staff who is responsible for logistics wasn't always in the Air Staff, he was once running an Air Logistics Center, or commanding an air division. So, he has a background in operations. Even the regulators are sympathetic to giving the operators more authority, and the result is that despite my grumbling, I'm getting about 97 percent cooperation.

ESQ: One of General Creech's concepts was that everything related to productivity at a base, whether it was launching aircraft, or conducting its radar mission. It forced the installation commander to look at everything that contributed to launching more aircraft. This program seems to provide that installation commander more total overview than he's had in the past; more of the opportunity to relate his installation to its production.

Stone: Yes, it does. I want to put him in charge. He ought to be in charge of how the airplanes are being maintained, how much lettuce they have in the commissary and what hours the flightline dining room is open. It ought to be his job to run the base. There ought not be too many rules from Washington that he's following. Here's a change I want to make. The Air Force gives an installation commander a guide to installation rules and regulations. It's a 353-page index. Now, if you put all the regulations there, it would be a lot more than 353 pages. So, instead of the installation commander thinking about how he can have a better wing, or what opportunities will be there for him tomorrow, he's rummaging through his 353-page index. I want to get rid of that. I've tried to boil it down to one page. What I want is to give all our installation people a card listing the principles. They would operate according to these principles.

ESQ: Do you have a direct dialogue with the bases that are in the Model Installation Program?

Stone: Yes. People from my office will visit every model installation at least twice a year. I have a lot of people spending a lot of time on the road now, learning what's going on at model installations, and the Air Staff is paying a similar price. Instead of the installations bearing the burden of this work, the staff is and everybody likes it. People on the staff feel better about it; they see what's going on, they sense that they're doing something good, that they're involved in something good. The installations are really doing it. The real cost is in the Air Staff and in this office, keeping track of what's going on. One of the original rules that my tiger team came up with when they put together the original prospectus is that if you want people to try things, you can't tie them up with red tape. Our system ordinarily tends to punish people with an idea; you want to try something, first write it down, then give it to me and I'll spend 2 minutes thinking of 30 questions that will take you 2 months to answer. Then we'll find out how serious you are about telling your new idea. If you're reasonably smart, you'll learn not to mess around with new ideas. So, our rule in the Model Installation Program is practically no documentation. Here's an example: The first request we got was from Moody, and I think the idea was planted by General Ellis. They wanted the authority to manage their own construction projects. The standard system or rules were if Moody AFB wanted a building, they had to get the Corps of Engineers to design it. When the design was done, the Corps would contract with someone to build it, to Corps specifications and the cost was about 6 percent of the cost of the project for design and another 5 percent or so to the Corps for overseeing the construction. So, what the guys at Moody saw was that they were giving a check for 11 percent of the cost of the project to the Corps and losing control. They wanted to do it themselves. Now, the Corps does provide some real value. And the system said Air Force bases have to do it. So, it was a bold request — it took exception to a serious defense policy. The request was made; a message was sent up saying Moody AFB requests authority to design and build their own buildings, reasoning they could do it better and cheaper than the Corps of Engineers. That was all the documentation. We told them, "Yes. Go ahead and do it." Reducing documentation was an effort to make it easy for them to try to do things, rather than hard.

ESQ: What is your design through these pilot projects?

Stone: I guess my original idea was that a couple of model installations would come up with amazingly great ideas which we could then offer everybody in the business. By gosh, these folks at Moody really figured out how to buy cars. From now on that's the way everybody buys cars. Or, these folks at Ft. Sill really figured out a way to operate family housing; from now on, all family housing will be run that way. But, my expectation was wrong. That kind of thing hasn't happened. What we really learned is that the folks at Moody have really done better when we left them alone. Our silly rules are really causing our competent, dedicated workforce at Anniston to waste a lot of time. I thought that deregulation was going to lead to some wonderful, new ideas. I hadn't realized deregulation was a great, positive benefit by itself. It's the absence of some of these regulations that's a big motivator and big producer of benefits. Installation and wing commanders will say this is a fantastic opportunity for us here at Whiteman AFB, for example, to run our base in a way that's sensible; where we can really do some good things without a bunch of Mickey Mouse rules and oversight from SAC and the Air Staff and OSD. I think they would tell you how they had improved missile maintenance, as well as base housing. The important thing is not what I think about the program; it's what the installation commanders think about it. I just think that's great.

ESQ: Was there a connotation that the installation commander was somehow being disloyal or not being prudent if he expanded beyond the confines, the narrow, negative space described by those regulations and misconcepts?

Stone: Everybody has his own interpretation of it. On this card, I say, "Encourage installation commanders to take charge; use all the authority available to them. Demand relief from stifling overregulations." I think those words are all General Welch's. If you ask General Welch whether these regulations defined a negative, narrow space, he would say, "Heck, no." But, I think if you go to a guy who's not a four-star general, but a colonel, and say, "Look, this DOD instruction says that you can't do what you're proposing to do. If you persist in trying, for example, to get the troops to fix up where they work in aircraft maintenance, I'm going to report you to the IG." Now if the wing commander is really certain that he's doing right, he'll go ahead. But none of us is always certain that we're doing right. In fact, these regulations do tend to slow the system down. They don't slow down the "super" people as much as they slow down us "ordinary" people; but, overall, they do slow us down. General Creech was constantly and repeatedly written up by the auditors for violating rules and regulations. In fact, the first time I saw General Creech, he said, "You can do one thing for me; you've got a rule that says troops aren't allowed to do self-help — none is allowed. I'd really appreciate it if you would fix that up." I called the guy who's in charge of the rule and asked him about it. I saw General Creech 3 weeks later and he asked, "Did you change that rule on self-help yet?" Well, we had a rule, written by some well-intentioned person, that said troops aren't allowed to work on facilities except where they live. We did allow them to fix up their dormitories, but not their work areas. I was just at Kadena, Yokota, and Hickam, and in all those places I saw amazing examples of self-help, where the troops had fixed up their work places. The commander was proud of it, the tech sergeant was proud of it, and the base was getting better operations because the leadership had violated this silly rule. If you put me in command of a military installation and gave me a 353-page index of rules and said, "You'd better follow these rules, or you'll be in big trouble," I think I would sit down, put my feet up on the desk, and start reading the rule book. You have got to have some rules, but they can be a terrible impediment; especially when the rules are as likely as not to be wrong. It's just wrong to outlaw troops fixing up their own facilities. By the way — we changed the rule.

ESQ: One of General Wright's concepts in design excellence is to design solely to mission, but also design sufficient qualities in facilities as to inspire his people to do their share, or voluntarily want to care for their facility.

Stone: Yes. I think that's wonderful encouragement and absolutely right. I see that in a lot of Air Force bases. Tom Peters' book, *The Passion for Excellence,* has several pages about General Creech and his attitude towards ownership. Peters observed that people who worked in Tactical Air Command have a feeling of ownership about the mission. That really comes through in a lot of odd places, and I think General Wright is trying to promote that more and more.

ESQ: Another of his concepts was an article he did called "image with a Small i." People who run the installation facilities want to appear to better serve their base and deregulation permits them to do it, permits them to create alternative strategies.

Stone: In the past, I think a problem in the civil engineering community stemmed from knowing the *right* way to do something. Here's a picture of a rusty hangar on a TAC base. Shortly after General Creech took over, he told General Ellis, who at the time, I guess was Colonel Ellis, "I want you to paint those hangars." And General Ellis, who was the expert in caring for buildings, said, "Sorry, boss, we can't paint that; there's an Air Force rule against painting galvanized metal. It's supposed to look like that, and anyway, if you paint it, the paint will just fall off. You have to both mechanically and chemically treat the surface, which costs a lot of money, and you have to notify Congress. It's a big deal." And General Creech said to General Ellis, "Well, paint them anyway." So, they painted them — and they looked great. General Ellis said that months and years later, he used to cringe when General Creech would call him and say, "Come on, Jud, let's drive down the flightline and see if the paint's falling off the hangars yet." The point was that the engineer here was acting as the guardian of the right and true way — there was a right and true way of preserving galvanized metal doors — and not as the person who could do whatever the commander wanted him to do and make it all happen. I checked with General Ellis before I told this story because I really didn't want to make him look bad, and I asked if it was OK with him if I told it to all the colonels who worked for him. He said, "Yeah. You ought to tell them that story because it's a good example of how any engineer, even a good one, can get in trouble defending the system instead of doing what the commander wants." So I told the IMAGE conference people that the real way to fix up their image is to quickly find ways to do what the commander wants, rather than slowly going through the rule books to see if you can find a rule against it.

ESQ: This is almost a 180 degree turn as one would plot a course from the way civil engineers have been taught to act.

Stone: I don't want to knock civil engineers, but you picked a good heading. Let me read you a sentence from Tom Peters. "We need nothing less than a 180 degree shift away from the manager's role as cop, referee, devil's advocate, and naysayer, to the manager as leader, coach, facilitator, and nuturer of champions." I think a lot of people in our business need to think about a 180 degree shift. My observation is the Air Force civil engineers have been way ahead of all the other civil engineers and everybody else. But, I think they need maybe a 45 degree turn from where they have been, and General Wright is moving them in that direction. I think General Creech, and General Ellis, when he was at TAC, helped define the right direction — and they can prove it. Look what's happened in the last 6 or 7 years at TAC, where the mission capability rate has increased; it increased from roughly 53 percent to roughly 83 percent. That 30 percent means TAC has about 300 more fighters capable of fighting than they did 7 years ago. Their safety record has gone up by the equivalent of 150 fighters, so managers sometimes say, "Show me the bottom line." Well, TAC's bottom line is a lot more combat capability. I think the whole Defense Department ought to go back and study TAC and say, "What was their secret?" One of their secrets was buildings and facilities that airmen felt good about and took pride in. Another one of their secrets was competition. General Creech reorganized TAC — the classic is the breaking up of organizational maintenance, so that all maintenance people on the wing are not just processers of work. "What is your job?" "Well, my job is to take these stacks of aircraft brakes from the "in" side of my worktable to the "out"side of my worktable." Now, that guy doesn't have anything to do with flying, but after the reorganization, you ask him what his job is and he says, "My job is to keep the blue squadron flying." So, that was another one of the things that TAC did that was a big part of their secret of success. One of the things I do, to the great irritation of some of my Army friends, is look for

elements of success in TAC when I am discussing installation excellence, and I use such things as the picture of the rusty hangar.

ESQ: The yield seems to be obvious in dollars, productivity, and the sense of identity yield among all those people who are part of the system.

Stone: I think the yield potential is practically limitless; however, it is hard to just take a chart and show them exactly where it is. Another of General Creech's charts shows major airplane crashes per hundred thousand hours. It starts off around 7 1/2 and then comes down to around 2, and the difference between flying for 7 years at 7 1/2 crashes per hundred thousand hours and TAC's actual record, saved 150 airplanes. The point of this is, I have talked to General Kelley, the TAC vice commander, about it and he said, "When we were operating back there, we thought 7 1/2 was a good record; we kind of controlled to that. If we actually bumped 7 1/2, we tightened up the rules; if we went below it, we loosened up." Further, he said, "We didn't think we were doing bad. After 6 years of better organization, better maintenance, better operations, better facilities, we were amazed by the difference. Seven years ago, if you'd asked me if I thought we could ever drive it down to 2 1/2, I'd have said, 'Absolutely, not!'" I think that kind of improvement is available in every operation, including my own. I expect that if my colleagues and I do well, people will look back 5 years from now and say, "Gee, we really weren't doing so well in 1985. We thought we were doing pretty good, but we proved in the years since, we really weren't doing so well. I think there are enormous payoffs for defense in providing people with freedom to do their job and incentives to do it better.

ESQ: There was almost an implied feeling in the Department of Defense, in the days of old, that people were not to be treated well; that you were there for your conscriptive service and if you were not a draftee, you were there to avoid being drafted. It was an organization of negative feelings.

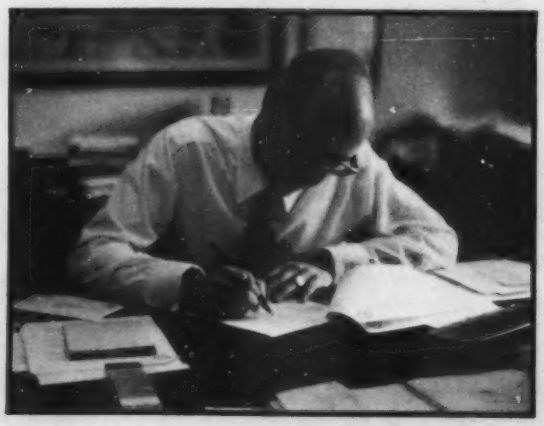
Stone: That's right. People were not to be treated well and, above all, not to be trusted. Incidentally, it's not just the armed forces that works this way; a part of American business works this way, too. It stems from the great advances of the 1920s and 1930s of assembly lines and work measurement. The idea was that you moved the assembly line at a certain speed and there was a right way to assemble or hang the left front door on a car. If the worker did it just the right way, he could hang a left front door every minute and a half — and it all worked. I suppose that served us well in the 1920s, as well as after World War II, when people hadn't been able to get any kind of car at all for 5 years and were happy to get anything. General Creech tells the story of component repair on TAC bases. They used to write rules in Washington about what parts get fixed, in what order. He said the rule for the maintenance people was in a list of things called "Overdue for Maintenance," and you had 7 days to fix it. If you didn't turn it out in 7 days, you got in trouble. So, here's what happens. You have a brake stack that just came in yesterday. You don't have anymore on the shelf and you're morally certain that an airplane is going to go down within 1 or 2 days for lack of a brake. Now, do you fix that? It just came in yesterday. Or do you fix these hydraulic pumps; you've got 30 good ones on the shelf, but more came in 6 days ago. The rule says that if you don't get those out tomorrow, you're going to have a black mark against your name. What do you care about? Do you care about clearing your name of black marks, or do you care about keeping the airplanes flying? Well, you care about clearing your name of black marks; you don't know for sure that a plane is going to be down tomorrow for lack of a brake. So, rules are written in Washington, "Overdue for Maintenance — 7-Day Limit." General Creech said that we changed that system so that the one-striper in the component repair squadron has a checklist. I've seen these checklists, and sure enough, there's a one-striper who knows these parts have been in for over a week, that they've got an ample supply of them, so he'll fix those when he has time. But, there is this part that only came in yesterday that the base is short of, hydraulic motors or brakes or whatever, so the one-striper knows that that's the next part that's likely to ground an airplane. So, he better work on that — and he figures it out for himself. So, the rule that says don't trust that one-striper is going to keep your airplanes on the ground; that's one of TAC's lessons.

ESQ: You can see analogies of that with the facilities business, also, where the work order comes through, goes through a long, labored process, and someone says, "Now, we'll write a statement of work and contract it out."

Stone: Well, there's a chain of experts whose job it is to decide whether you need that work. You want a partition? Well, without a work order, eventually a crew of experts will come over to see if you really need it. I think the Air Force civil engineers are working hard to stomp out that kind of thinking. You've got to trust the operator. You've got to treat the troops well, not just accept the thing. Another of General Creech's ideas is you can't use the economists' approach to pay, where you figure out at what level of pay would they all leave the service. Then, you pay them just a little bit more. That makes the erroneous assumption that people either work for you, or they don't. But, in fact, people can work for you 8 hours a day, or they can work for you in total dedication in all their waking hours. An investment in trusting them, and in treating them well, pays off. You can see examples of that payoff all over TAC and in a lot of other places.

ESQ: Does your program deal with the productivity environment, which includes the base as a community? Do the supporting facilities — that support families as much as the airman — figure in the model installations program?

Stone: First of all, I don't allow anyone to say the word productivity in my office. The family is a crucially important thing. Most of our people get married and have



children as they proceed through the system. They come in as E-1s, or E-2s and often come in single, but as they progress through the system, to E-4, E-6, or O-3, they acquire families and the family determines whether a person stays in the service. We have to provide services for families — housing, child care, commissaries, exchanges, recreational facilities — to create an environment that makes it congenial to family life. If you have a lot of Air Force spouses who don't like the Air Force, the Air Force members in those families are not likely to work for you enthusiastically in all their waking hours; that's a big loss for us.

ESQ: How do you recognize the best of the Model Installation Program bases?

Stone: I am very enthusiastic about our Commander-in-chief's Award for installation excellence. We just moved this trophy into my office this morning because we needed a place for it and Will Taft needed some room in his office. Each service nominates one winner each year and they get the Commander-in-chief's Award for installation excellence. I just visited Kadena AB, Okinawa and the Naval Communications Station at Guam, which won the Air Force and Navy awards. On both those bases, the installation commanders had clear, unambiguous responsibility for the mission. Brig. Gen. Snyder, at Kadena, and Captain May, on Guam, are clearly in charge of really integrating how they brought all the pieces at the base into the mission outlook. They are different kinds of bases. At Okinawa, there's an air division with a lot of fighter planes and some other support for SAC and some SR-71s. At the communications station, they're basically a listening post, and both installation commanders were putting together substantial programs with the local, on-base dependent schools, the dining hall, the bus stops, and maintenance facilities. The person in charge of the mission, the person whose job is to command the division or to command the listening post, had all these elements that they had molded into a really hot-shot operation. So, I see those as models, too; that is, I want to tell the world what's going on at the communication station on Guam and what's going on at Kadena. I'm a great believer in communicating what can be done.

ESQ: I feel you have perceived your job a little bit differently than those who have preceded you. How did you happen to change the perception of what the job was all about?

Stone: That's a difficult question. For years, I saw people working at cross purposes. When I first got the job, I started to travel around. I thought I would see what it was I was supposed to be doing, and I saw, probably to my surprise, a lot of craziness. In my previous job, I was supposed to gather statistics. I remember gathering statistics on how much money we saved on energy conservation. My first trip, I went to one base where they told me how they were saving energy; they showed me their progress and it looked great. Here was their baseline, here was the glidepath they were supposed to be on, and their results. I said, "Hey, that's super! What did you do? Did you buy new insulation, or new heating plants?" They said, "Oh, no. We used to turn the heat on in the barracks Sept. 15. We didn't turn it on until Oct. 1 last year, and this year, we didn't turn it on until Oct. 15." I asked, "Well, don't the Marines complain?" And they said, "Oh, yes sir; they complain a lot." That's crazy. The happy end to that story is that years later that base was proclaimed a model installation. When the commander (this is the new commander) went to receive the Department of the Navy Energy Conservation Award, he said, "I will make you one promise. We will never receive another energy

conservation award at the expense of our people."

I saw the rules on family housing. If you have two children of the same sex and they're both under 6, they're entitled to one bedroom. If one is over 6, they're entitled to two bedrooms. We had rules that said how you calculate your requirement; how a base assigns its own housing. I could see that our rules were just not making sense; that bases where we thought we were adding some value with the program, we weren't adding value at all. We were kind of hassling the people.

The day I got my job, a woman came in with an armload of drawings and wanted to talk to me about a project. As she put the drawings down on the table, I just instinctively said, "Don't put those drawings down there." And I made a new rule. I said, "No one is allowed to unroll a drawing in here." Well, if the process requires the deputy assistant Secretary of Defense to look at drawings of buildings, it's crazy; we've just got too many buildings. I very briskly cleared the decks of stuff I knew we shouldn't be doing. I knew we shouldn't be looking at drawings, just like we shouldn't be deciding at what age a boy and girl have to be in separate bedrooms. As it turned out, I can prevent people from unrolling drawings in here. But, just because I don't like the regulation doesn't take it off the books. It took me a while to realize that. Getting rid of regulations is hard work. You've got to write a new regulation to get rid of the old one, then you've got to go around telling people the old one has been changed, because it takes a long time for the word to get out.

ESQ: How do you communicate with the rest of the world, beyond the Pentagon, if there are changes?

Stone: That's an important part of my job. One way I do it is through key people. (And this is another unexpected benefit of the Model Installation Program.) The military moves people around. The guy who was commander of the naval air station in Meridian (which is one of our model installations) for the last 2 years, is now the deputy for military installations to the commander of the U.S. Atlantic Fleet, so he's had 2 years in model installations and is now in a position of influence. He talks to every naval installation commander on the eastern seaboard. The guy who commanded Kirtland AFB until June of this year, is now on the staff of the Air War College, teaching a course in which he'll influence hundreds of others. So, I've wound up talking to a select bunch of people, and they move around and talk to a bigger bunch. I think the word is getting out that I've got a lot a lot of support from General Wright and General Ellis, with the Air Force; General Heiberg and General Delbridge of the Corps of Engineers;

and from Admiral Jones of the Naval Facilities Command. They're kind enough to invite me to talk to commanders conferences. I gave this speech to the IMAGE Conference down at Homestead. I get a chance to talk to the *Engineering and Services Quarterly*; so I'm getting a lot of help in getting the message out.

ESQ: From your position, how do you perceive the feeling of the people that you work with, not only in OSD, but through the halls of Congress? Are you finding a lot of support for the concepts and ideas?

Stone: Yes, I find a lot of support. It's an uplifting idea in several ways. Most people have a sense that our whole world is overregulated. Anyone who's been around the government knows there are many more regulations than we need. The idea of helping local managers take control is uplifting. There is still a degree of suspicion that, "You can't let these guys do what they want. My God, they'll build the Taj Mahal on their base." You know, somebody may, but the vast majority of our people are serious people; they've survived a very tough competition. Before you get to be a wing commander in the Air Force, you've got to be the best of a very select group.

The cost of distrust is high. In the Pentagon, the battle between the regulators and the deregulators hasn't been settled. There are still a lot of people who think we need more and better regulations. To them, the answer to people at installations doing their job is more regulation; the outcome of the battle is still uncertain. I want to use the experiences of General Creech and General Welch, and the experience of a winning organization, wherever I can find it, as a weapon. I want to use these ideas as a weapon in the battle between the regulators and deregulators.

ESQ: There's a point in the advocacy of budgets and appropriations that there may be a shift under your program to these more innovative concepts and away from more traditional methods of validating expenditures. Do you perceive that as potentially a challenge?

Stone: I hope the system is going to move in that direction. I'm beginning to see arguments on the Hill over whether this micro-management of defense is beneficial or not. Now, what some of the members of the Appropriations Committee say is, "Listen, if it weren't for our micro-management, you'd see more examples of $600 ashtrays and $1,000 plastic storage covers." That's nothing new; what is new is a growing number of people in Congress who are seeing this excessive control, excessive oversight, as part of the problem, rather than the cure.

ESQ: Is there an implication in micro-management that we're transferring the logic, the philosophy, the concept, the ethic of doing something to a higher body, which alleviates us at base level from having to deal with that as long as we follow the norm?

Stone: I think that's exactly right. I think people in a system that's micro-managed tend to fire up a bunch of requests to the top; they can't really exercise their own priorities and, without the authority, they have a tendency to slough off the responsibility. If the guy at the base has a hundred thousand dollars to spend on fixing up buildings and could do what he wanted with it, he would figure out what's the best thing to do. But if he's got to come to me for the money, he is going to ask me for things he thinks I will like, and that's just the bottom line. He may not know what I like; even if he does know, it may not be what he needs most. There will not be the feeling of excellence shared at that installation until the resources can be allocated to the needs of *that* base, and the priorities of *that* commander.★

Whiteman ...

by 2nd Lt. Michael A. Griffin

Imagine the average worker in the average shop. Every week he has to submit a report that no one reads, but that is required by an antiquated regulation. Or, perhaps this worker conceives of a better method of maintenance contrary to that established in the technical order. How does this worker deal with the problem? In the past, the worker probably simply accepts the situation since it is very difficult to change things grounded in obscure tradition and governed by the response, "But, we have always done it that way." However, if that person is at Whiteman AFB, or at any of several other Model Installation Program (MIP) bases throughout the Air Force, he can spend a minimum amount of time and effort and "MIP it!" The MIP is the expedient method of doing away with those unwanted, unnecessary, and illogical plagues and processes that make our worklife tedious and frustrating at times.

Of course, as with any new program, it takes a certain amount of time to determine how it is to be administered and get people to accept it. The MIP, at the halfway point in its test trial, with a year and a half behind it, has overcome these problems, perhaps as no other program ever has in the Air Force. Here at Whiteman AFB, people, from the apprentice in the shop to those in the highest echelons of management, have found the MIP the way to go in changing those things that need changing. We have used it to restructure the system in both large and small ways; by ridding ourselves of needless bother, creating innovative new methods of conducting business, and justifying procedures we have already been using to get the job done that were not exactly "by the book."

Our housing office has been particularly successful in doing away with nuisance regulations and bringing decision authority down to its proper level — the housing officer. For example, previously no quarters could be held vacant for longer than 30 days. Now, however, the housing office can make the decision to keep a house vacant for a longer duration when key/mission-essential personnel are inbound. The approval of retention requests are also now in the hands of the housing officer, as is the approval/disapproval authority for hardship applications and out-of-turn assignments. Also, people with line numbers for promotion to a rank that will change their housing category can make application for the waiting list for the new housing category upon notification of their selection and do not have to wait until date of promotion. Some of these ideas for changes have been suggested for years and we can't take credit for originating them. The MIP has provided that extra push necessary to

Goes MIP

get these ideas out of the discussion arena and into the working world.

Other offices have also done their share to delete annoying minutiae. We no longer have to:

- Place header strips for the current and first future month on boards in the production control office;
- Submit a base comprehensive plan every year (every third year now suffices);
- Use a master sign plan; or,
- Perform an economic analysis on projects over $300,000 — only for projects over $1 million.

All of these smaller changes, and many more like them, add up to large savings in time and materials. More importantly, they decentralize responsibility and place the decision-making authority at the lowest level possible.

Not all our MIP proposals deal merely with the small thorns that afflict us. Some ideas are very ambitious. For instance, Whiteman has the flexibility through MIP to choose its design/construction agents for future military construction program projects, or to be our own design/construction agent. Whiteman also has base-level project approval and technical review authority for most construction projects, after having "nipped" the previous approval authority levels into nonexistence. Some of these larger MIP initiatives have large monetary payoffs, such as the proposal that allows us to use a much less expensive single-ply roof wherever it is applicable, instead of the previously required built-up roof. This has generated a $185,000 savings, which we can apply elsewhere on base.

We expect increasingly greater payoffs in the future as many proposals that are "in the mill," hopefully, gain approval. Some of these include allowing us to run our own civil engineering operated supply store (CEOSS) (as opposed to GOCESS or COCESS), allow CE to execute and administer its own architectural and engineering contracts, and establish a petty cash fund for the local purchase of small, non-stock items. Over 120 MIP proposals have come out of the civil engineering squadron. While CE makes up only about 11 percent of the base working population, we have contributed approximately 20 percent of all the approved MIP proposals so far (36 out of around 175). Many of our proposals have to do with changing or amending the way other base organizations do their jobs; yet, relatively few proposals from outside the squadron deal with civil engineering.

The basic philosophy behind the MIP is quietly sifting down from the top — it's not wrong to fail. You need not sit on your hands anymore. Innovation and creativity are necessary to stay on top and this involves having the courage to take a risk. If you fail, you are merely back where you started. If you succeed, you have accomplished an improvement everyone can benefit from.

The MIP is constantly gaining momentum here at Whiteman with its revolutionary method for overcoming obstacles. The scope of the changes may be as small as allowing us to maintain Prime BEEF training records on a Zenith microcomputer, or as large as giving siting approval authority to the base facility board. Whatever the scope of the change, the fact remains that the MIP has proven to be invaluable.

The examples offered are merely the "tip of the iceberg" of the many worthwhile ideas that this program has generated within civil engineering at Whiteman. We expect continually increasing benefits from the Model Installation Program in the later half of its test run. With any luck, the program will hopefully be deemed effective enough to be incorporated throughout the entire Air Force.★

2nd Lt. Michael A. Griffin is deputy chief of the industrial engineering branch, 351st Combat Support Group, civil engineering. He graduated from the University of Tennessee with a bachelor of science degree in Industrial Engineering, and is now working on the master's of Business Administration degree from the University of Missouri. He is the model installation program officer for the 351st/DE.

Lieutenant Colonels

Amthauer, David E.
Bretz, Thomas E. Jr.
Bridges, Sidney V.
Christensen, Susan A. *
Costigan, Robert R.
Destadio, Frank J.
Fox, Leonard D. +
Gabrielson, Sally F. *
Garcia, Samuel E.
Gildewell, Donnie D. +
Hamill, George G.
Holden, Harold H. III *
Jordan, Jungus F. *
Junkin, George M. Jr.
Kline, Clayton M.
Kochanek, Richard J.
Kroop, Ronald H.
Lyon, Robert B. III
Marshall, James R.
McCalla, Roy A. *
McEvoy, James F.
Murray, James C. Jr.
Nall, Robert H.
Osburn, Robert W.
Pinkerton, Hedy C. *
Pratt, George K. **+
Schultz, Robert J.
Shearston, Peter D. *
Shoemaker, Leroy E. II
Skrypczuk, Oleh
Snowberger, Wayne H.
Tickel, Jobe C. Jr. +
Uhlik, Felix T. III
Walker, Thomas J. **
Williams, Richard L.

* = Services
** = Biomedical
+ = Below the zone

Chiefs

Bell, David E.
Bolin, David A.
Bowen, Herman T. Jr.
Boxx, Kenneth M.
Cathey, Jimmie D.
Cheri, Norbert S.
Clinton, Oscar S.
Collins, Issac
Collins, Roy E.
Cooney, Frank J. Jr.
Crowe, Kenneth R.
Ditsworth, Charles
Downey, Tommy R.
Elliot, Richard D.
Erlenbusch, Donald
Etchberger, Russel
Faircloth, Charles
Finkbeiner, Hans P.
Garcia, William O.
Golden, Joe T.
Granier, Phil
Hall, George F.
Hamilton, Carroll R.
Harper, Benny C.
Hodge, James L.
Holman, Nathaniel
Jacobs, Robert W.
James, Jessie
Janicky, John P.
Johnson, Alfred
Johnson, Charlie L.
Kaough, Howard J.
Kelley, Everett L.
Kelly, Dauris W.
Kirk, William C.
Krupa, John M.
Kuster, William F.
Lamb, Leonard R.
Lee, Jerry W.
Lewis, John N. Jr.
Mathis, Coy M. Jr.
McHenry, John W. Jr.
Mee, Vincent D. Jr.
Merril, Gary S.
Miller, Woodrow D.
Milliken, William R.
Moore, Paul T.
O'Neill, Henry J.
Osada, Hideya
Pawlowski, Kenneth
Pecina, Thomas L.
Pecuir, Myron O.
Pinson, William E.
Pollock, Henry D.
Ringstad, Arnold D.
Sandoval, Natividad
Schott, Gary T.
Scruggs, Billy E.
Simmons, Harvey V.
Sincox, Bruce T.
Smith, Harold J.
Smith, Roy L.
Speed, Harold H.
Stough, Samuel L.
Taylor, Kenneth W.
Taylor, Otto
Thompson, Terry L.
Tomko, John A.
Tremblay, William
Vaughn, Elroy W.
Veatch, Daniel L.
Vogel, Arthur F.
Watts, John W. Jr.
Wells, James D.
Whitaker, James L.
Whitson, Theodore S.
Williams, Edward P.
Wolfshohl, Dennis E.
Young, James E.

Seniors

Adkins, Ronald R.
Allen, Jerry M.
Bacon, Harry J.
Bagby, Michael L.
Barrett, Henry L.
Bates, Steve E. Jr.
Bell, John L.
Bennett, Johnnie L.
Bianco, John J.
Boisacq, George F.
Bosshart, Robert E.
Bowers, James F.
Brooks, David E.
Buchanan, Lawrence E.
Butzke, Richard E.
Carr, Lenny M.
Carter, Willie J.
Cascaden, Roger D.
Chapin, Brent C.
Cleary, Curtis A.
Coe, Timothy A.
Conrad, Robert L. Jr.
Copeland, Leon
Cosby, Daniel E.
Cracknell, Dennis, L. A.
Cromartie, Charlie C.
Cuttle, Edward F. Jr.
Dahlgren, John W.
Davis, Harry
Delgadillo, Miguel A.
Deufemia, Joseph P.
Dingess, Roger O.
Dixon, Timmie
Dodson, David L.
Dorsey, Clarence W. Jr.
Downing, Vaughn R.
Dzielinski, Francis J.
Edwards, James H. IV
Eggleston, Dale Jr.
Ellington, Paul J.
Ellingwood, George T.
Ellis, John V.
Evans, Donald W.
Evans, Douglas K.
Fetterly, Lyle L.
Fields, Anthony W.
Fitzgerald, Thomas C. II
Fugate, James B.
Gage, William H.
Garcia, Nicolas
Garcia, Ricardo D.
Garrison, James L.
Golson, Jerry W.
Gomez, Rodolfo
Gonet, John A. Jr.
Gonzalezmartinez, Luis M.
Gore, William F.
Groover, Leander W.
Guillot, Richard A.
Hammonds, Jimmy E.
Hanson, Brian W.
Helbig, Walter
Henry, Roger A.
Hert, John F.
Higgins, Jerry W.
Hudson, Robert H.
Hulme, John T.
Humbert, Wesley E.
Hurley, Lewellyn J.
Jackson, James
Johnson, James C.
Jones, Earl H.
Kariores, Dennis
King, Danny K.
Kirkland, Allen C. II
Krugman, Willis D.
Kynard, Walter
Ladner, Gerald M.
Larison, Stephen M.
Larson, Ben T.
Laycock, Jerry M.
Less, John D.
Lee, Edward T.
Lellore, Henderson Jr.
Livingston, Charles A.
Loy, John R.
Lucey, John A.
Marlow, Gary J.
Mauck, Elwood C.
McBay, Charles E. Jr.
McGrath, Daniel J.
McKenna, Vincent A.
McKinney, Thurman B.
Mendoza, Alfredo G.
Meyer, Edwin H. Jr.
Meyer, Paul E. Jr.
Michell, Robert B.
Miller, Kenneth E.
Mitchell, John P.
Moore, Toby Jr.
Morehead, Michael D.
Morgan, Richard L.
Mundy, Larry E.
Munsch, Clarence D.
Nash, Jerry D.
Norman, Billy J.
Oakes, Lester M.
Oppelt, David P.
Otto, Wayne L.
Owens, Fred E.
Page, Philip D.
Pasillas, David G.
Patterson, Charles M.
Patterson, Veidon L. Jr.
Petta, James D.
Pflug, John C.
Phillips, James I.
Phillips, Thomas J.
Pickering, James
Piper, Walter E. Jr.
Pratt, Franklin W.
Queen, James T.
Rachel, Larry T.
Rawles, Collins C.
Reilly, Michael T.
Reinhardt, Jeffrey K.
Riccardino, Lou
Rice, Jesse J. Jr.
Riva, John E.
Roderick, Julio P. Jr.
Rodgers, Steven B.
Rohe, David J.
Rush, Henry L.
Ryneraon, Jerry A.
Sabato, Joseph L.
Salvas, Raymond L.
Sanders, Cleatus E.
Saunders, William R.
Schoeb, John C.
Shirk, David B.
Shuhler, Patrick M.
Silas, Frank E.
Sliger, Larry L.
Slocum, George L.
Smith, Cecil T.
Soliday, Ernest S.
Soto, Carlos Jr.
Spalone, Ronald M.
Staten, William E. Jr.
Stevens, Johnny W.
Stout, George D. Jr.
Taylor, Glen N.
Taylor, Melvin F. Jr.
Taylor, Ralph J.
Tehee, Stephen J.
Tobar, Reymundo
Trowbridge, Robert D.
Taue, Burton Y.
Vanderwyst, Ralph H.
Victorino, Louis T.
Voeth, Robert L.
Wade, Lawrence
Wade, Millard C.
Wallace, William J.
Wallace, Bobby M.
Walter, Francis L.
Wardlow, Donald C.
Webb, Myron K.
Wenzl, Stephen R.
West, Howard T.
Westly, Thomas Jr.
White, William F.
Wilfork, Ellis
Wilkinson, Roger A.
Williams, Donald W. Jr.
Williams, James P.
Williams, Robert A.
Wilson, Basil M.
Wilson, Donald L.
Wright, Curtis L. Jr.
Young, Alva N. Jr.
Zielinski, George E.

People, Places & Events of Interest

Gary S. Flora Is New Associate Director

Maj. Gen. Clifton D. Wright Jr., Director, Engineering and Services, HQ USAF, has announced the appointment of Gary S. Flora as the new Associate Director of Engineering and Services, HQ USAF, Washington, D.C., succeeding Harry P. Rietman, who retired. Flora previously served as Programs division chief and Technical Director, Air Force Regional Civil Engineer - Ballistic Missile Support, and supported the facilities acquisition programs for the Peacekeeper and Small ICBM weapon systems. He was appointed to the current position September 1.

He was born Jan. 28, 1934, near Myers, Ky., and graduated from Carlisle High School in 1952. After entering college at the University of Kentucky, he received an appointment to the United States Naval Academy. He graduated in 1958 and received a master's degree in Civil Engineering from the University of Pittsburgh in 1965. He earned a master's degree in Business Administration from Auburn University in 1972, and completed the Senior Executive Fellows Program at Harvard University in 1983.

From September, 1966, to September, 1967, he was chief of Programs at Tuy Hoa AB, Republic of Vietnam. On his return to the U.S. in 1967, he was assigned to the Department of Civil Engineering at the U.S. Air Force Academy, Colo.

In 1971, he attended Air Command and Staff College (ACSC) at Maxwell AFB, Ala., and concurrently participated in a graduate program with Auburn University. Upon graduation from ACSC in 1971, he was assigned as the chief of Programs in base civil engineering at Hickam AFB, Hawaii. In 1974 he was

transferred to HQ Pacific Air Forces as the Inspector General's civil engineering staff officer.

In July, 1976, he assumed command of the air base squadron at Ching Chuan Kang AB, Republic of China. He was transferred to the Pentagon, Washington, D.C., in July, 1977, as an action officer in the Programs division of the Directorate of Engineering and Services.

Upon his retirement from the Air Force in August, 1978, he was employed by the U.S. Labor Dept. as an engineer on a large training facility construction program for the Kingdom of Saudi Arabia.

He is a registered professional engineer in Colorado, Florida, and Kentucky and a member of the American Society of Civil Engineers and the Society of American Military Engineers.

He is married to the former Sylva Owens of Lexington, Ky.

General Callaghan Nominated for Second Star

Brig. Gen. James T. Callaghan, Commandant of the Air Force Institute of Techology (AFIT) and the Defense Institute of Security Assistance Management (DISAM), has been nominated by the President for promotion to major general. Senate approval of the promotion is pending.

He is responsible for a variety of in-residence educator's programs which benefit Air Force Engineering and Services. These include the School of Civil Engineering, the Graduate Engineering Management program, undergraduate and graduate educational programs carried out through civilian institutions, and the Education-with-Industry (EWI) program.

General Callaghan began his tenure at AFIT in June, 1983. Under his leadership, AFIT has initiated a wide

range of programs and activities to enhance the quality of life and academic environment at AFIT. He has directed the development of AFIT's new Science and Research Center, a faculty enhancement plan, and initiatives to improve computer support to the Institute.

AFIT Graduates 27 "GEMS"

Twenty-four Air Force (AF) civil engineering officers and three civilians completed the graduate engineering management (GEM) program and graduated September 25 with master of science degrees. The three civilians are the first civilian graduates of the GEM program. Lt. Gen. Leo Marquez, Air Force deputy chief of staff, Logistics and Engineering, delivered the graduation address.

Several students received special recognition for their outstanding academic achievements. 1Lt. Benjamin R. Wilson was chosen from 157 students for the Gen. Edwin W. Rawlings award, given to the one student in each class for outstanding scholarship and demonstrated superior qualities of character, initiative, and leadership. Lieutenant Wilson (3.97 GPA) and 1Lt. Wendell A. Trivette (3.95 GPA) were designated as distinguished graduates.

At the graduation dinner on September 23, Maj. Gen. Clifton D. Wright Jr. presented the Society of American Military Engineers (SAME) award to Lieutenant Wilson as the top GEM student. General Wright also presented the new George K. Dimitroff award to Capt. L. Dean Waggoner and 1Lt. Marwood A. Moe, for their thesis *A History of Air Force Civil Engineering Wartime and Contingency Problems from 1941 to the Present.* Dimitroff edited the *Air Force Engineering and Services Quarterly* and its predecessor, the *Air Force Civil Engineer,* from 1967 to 1980, when he was killed. General Wright and the *Quarterly* editor sponsor the award. General Wright cited Dimitroff as "a true friend of the people of Engineering and Services; a trusted advisor to the current and former leadership; a person who could challenge our people to reach for excellence." General Wright commissioned the award because of Dimitroff's long association with the Air Force Institute of Technology before moving to HQ Air Force Engineering and Services Center, Tyndall AFB, Fla. The award will be given annually to the author(s) of the thesis which is judged to be academically outstanding in terms of, research methodology and written presentation, and which makes the most significant contribution to the USAF E&S community.

Five students were selected to visit the Air Staff to present the results of their thesis research: Captain Waggoner and Lieutenant Moe; Capt. Ruth I. Larson (*An Analysis of the Programming of Facilities to Support Deployments of Major New Weapon Systems*); Capt. Paul E. McMullin (*A Longitudinal Study of the Relationship Between User Attitudes and the Success of the MAJCOM and AFRCE Work Information System*); and Capt. William C. Morris (*Analysis of the Perceived Adequacy of Civil Engineering Prime BEEF Training*).

General Wright presents the first Dimitroff award to Lieutenant Moe and Captain Waggoner. Lieutenant Moe is now assigned to the 1605th Civil Engineering Sq., Lajes Field, Azores. Captain Waggoner has been assigned to HQ Strategic Air Command, to the DCS/Engineering and Services, Offutt AFB, Neb.

General Wright and Dr. Anthony P. D'Angelo share the distinction of being honorary GEMs, voted by the class of '85. General Callaghan explained that the award is for the people who most selflessly supported the program during the class year. Dr. D'Angelo teaches federal financial management, Systems Acquisition Management department.

Lieutenant Wilson, center, was the winner of both the SAME and the General Rawlings awards at AFIT. General Wright, left, presented the SAME award. Brig. Gen. (major general selectee) James T. Callaghan Jr., right, presented the Rawlings award. Lieutenant Wilson is now assigned to the 50th Civil Engineering Sq., Hahn AB, Germany.

Large Unit Innkeeper Award — Lt. Col. William Abney, 315th SVS/CC, and Don Sapp, Billeting officer (above); Small Unit Innkeeper Award — Capt. Robert Rush, 3500th SVS/CC, and MSgt. Steven Sobotka, NCOIC Billeting (right); Outstanding Services Unit — Maj. Dennis Bossen, 20th SVS/CC, and MSgt. Jay Payne, NCOIC Food Services (below right).

Lowry, Reese Top "Innkeepers"

The 3415th Services Squadron, Lowry, AFB, Colo., and the 64th SVS, Reese AFB, Texas, have won the USAF Innkeeper awards for excellence in billeting support. Lowry won the competition among large organizations (more than 285 beds), while Reese won in the small category (285 or less).

Runners-up in the large and small categories were the 377th SVS, Ramstein AB, Germany, and 432nd SVS, Misawa AB, Japan.

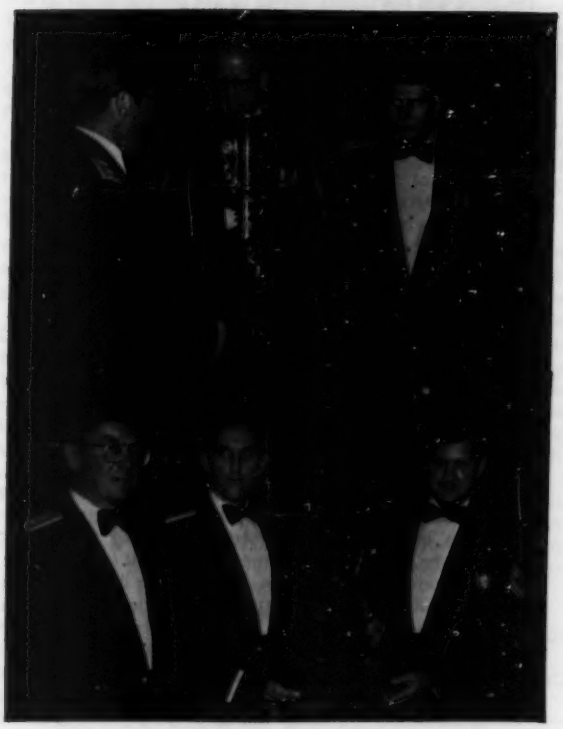
The Innkeeper awards are given each year to the base Services organization with the best overall billeting program. The competition emphasizes efforts undertaken to attain commercial lodging standards and equitable billeting services for all categories of travelers.

Evaluators took into consideration the quality of customer services, facilities, furnishings, and amenities; overall facility and personnel management; housekeeping standards and management of front desk operations; funds management and administrative support; supply, equipment, and furnishings management; staff personnel appearance, training, and motivation programs.

In competition were eight base Services units in the large category award, and seven units in the small category. All competitors were nominated by their respective major command headquarters.

Two HQ USAF teams evaluated the MAJCOM finalists. Large category evaluators were Ms. Eleanor Linder and CMSgt. John Reinders, from the HQ Air Force Engineering and Services Center (AFESC), Tyndall AFB, Fla., and James Fox of the Air Force Military Personnel Center (AFMPC), Randolph AFB, Texas. Small category evaluators were Maj. William Brady and MSgt. James Glawson, HQ AFESC, and James Cassidy, AFMPC.

The awards were presented mid-December at a special ceremony during the Air Force Engineering and Services Worldwide Conference at Homestead AFB, Fla.



Services Awards Honor Best in the USAF

At the Air Force Engineering and Services Worldwide Conference, Homestead AFB, Fla., Dec. 9-13, eight of the best performers in Services for 1985 were honored, and the top Services unit was named.

Best Services unit of the year is the 20th Services Sq., RAF Upper Heyford, United Kingdom (U.S. Air Force in Europe); with the 3500th SVS, Reese AFB, Tex. (Air Training Command), runner-up.

Individual Services winners and runners-up for the year are:

- Maj. Gary C. Bradham, 363 SVS, Shaw AFB, S.C. (Tactical Air Command), Services senior military manager; Maj. Glenn Gaslin, 51st SVS, Osan AB, ROK (Pacific Air Forces) runner-up.
- Capt. Deborah A. DuMont, 5073rd ABG, Shemya AFB, Alaska (Alaskan Air Command), Services military manager; Capt. Robert G. Rush, 3500th SVS, Reese AFB (ATC), runner-up.
- SMSgt. Antonio Bavuso, 90th SVS, F.E. Warren AFB, Wyo. (Strategic Air Command), Services military superintendent; MSgt. Donald E. McBride, 3rd SVS, Clark AB, Philippines (PACAF), runner-up.
- TSgt. Gary F. Lamphere, Services directorate, U.S. Air Force Academy, Services military technician; TSgt. Lloyd G. Dobson, 363rd SVS, runner-up.
- Bonnie A. Kanitz, Peterson AFB, Colo. (Air Force Commissary Service), Services senior civilian manager; Thomas J. Lowery, 2750th SVS, Wright-Patterson AFB, Ohio (Air Force Logistics Command), runner-up.
- Jack B. Brotemarkle, 67th SVS, Bergstrom AFB, Tex. (TAC), Services civilian manager; Joseph R. LaFrance, 6550th ABG, Patrick AFB, Fla. (Air Force Systems Command), runner-up.
- Hong Sik Choe, 51st SVS, Osan AB, Services civilian supervisor; Athena M. Harris, Dover AFB, Del. (Air Force Commissary Service), runner-up.
- Susannah Howard, 363rd SVS, Services civilian technician; Lawrence G. Gunning, 12th SVS, Randolph AFB, Tex. (ATC) runner-up.

Education and Training:
TWO-WAY COMMUNICATION IS A MUST FOR SUCCESS

by Col. Robert G. Gilbert
Commander, HQ AFESC

During the meeting of the Program Review Committee overseeing the technical training support provided to Engineering and Services by the Air Training Command, it became apparent that insufficient feedback is being received by ATC from our people in the field who are in the best position to evaluate the quality of trainees.

Part of the success we have enjoyed in the past with education and training is due to systematic feedback from the program managers' levels to the people who run the School of Civil Engineering at the Air Force Institute of Technology (AFIT), and the people who shape the programs of the technical training centers (TTCs).

Our early leadership, at a critical point in time in the history of the School of Civil Engineering, came up with the concept of the program review committee (PRC), through which we influence the quantity, quality, and substance of the courses offered to our people. In time, it has grown to include the participation of the leadership of E&S worldwide, the AFIT commandant, and all other AFIT departments which support us — the School of Systems and Logistics, the Civilian Institutions, and my people from the Center who are responsible for matching education to need.

When the concept grew to include a PRC for the TTC programs run by the Air Training Command, we became one of the few professional and technical areas of the Air Force with formalized feedback programs covering 3-level training to the doctorate. However, these annual committee meetings, supplemented by other nitty-gritty curriculum reviews, deal largely with what is to be taught, to whom, when, with what methodology, and on whose turf. It is a great beginning, covering those factors which translate into numbers of students going to specific classrooms. Missing is the most important link of all.

The product of education and training is the student. We deal with the qualifications of students at several different levels. But, the most important evaluation belongs to our people in the field, through two training evaluation mechanisms. One deals with the content and structure of training, the other with the specific qualifications of the students after they have been trained. As Maj. Gen. Larry N. Tibbetts has commented in the accompanying article, these reports are not taken lightly by ATC. They are essential ingredients to conducting successful training programs. He is clearly saying that ATC wants more feedback. Our leadership is clearly saying that it is our responsibility to provide appropriate comment to ATC on their programs in general, and on their students in particular.

Pacific Air Forces has taken the initiative of assigning the responsibility for TQRs to the training manager, with definite guidelines on completing the reports and getting them moving in a reasonable period after receiving a new trainee. Other E&S commands will be taking similar actions in the near future. The people of ATC will be receiving more frequent and better feedback.

It is important to remember that the TQRs must be based on the training criteria. While we may want to receive 5-level trainees, in most cases we are receiving 3-level people who are ready for on-the-job training. It is up to us to make these young technicians into journeymen. ATC is responsible for teaching fundamentals. We help training graduates put these fundamentals to work. A more aggressive feedback program can only work if our people are fully versed on the criteria in the regulation, and the training standards used by ATC to develop courses.

Col. Gilbert

Such feedback is an established procedure at AFIT, where the goals are to broaden professional capacities and knowledge. This feedback is a systematized way in which the graduate of a course or program can interact with the supervisor to provide valuable comments. In addition to providing better education, this improves the sense of direction and purpose, and the self-image of the AFIT faculty and department managers.

In the coming years, we will be dealing with many changes affecting the way we do business in E&S worldwide. There will be new technologies, areas in which far greater professional depth and understanding are required by people long after they have completed their last residential college or university program. Just in the area covered by Project IMAGE (innovative management achieves greater effectiveness), we see outlined new concepts and methods, different approaches, and a far greater productivity. As we briefed IMAGE to the TTC PRC, it was apparent that part of the success of the program is the participation of field-level people in the review and recommendation processes. There is no doubt that IMAGE will have an impact on our educational and training support, at the purely professional study level, and in restructuring some training as we reshape our jobs. The relevance of IMAGE at the outset is due to good creative management, taking its cue from the people who do the job. Similarly, those who train our people need the same quality and intensity of feedback to properly structure their programs in our behalf.

Communication, training, and education are all part of a process, and you are a part of it, no matter where you are in the world of E&S. For the process to work, you must do your part.

Gen. Tibbetts

Readiness Through Training... It begins with You

by Maj. Gen. Larry N. Tibbetts

The primary duty of every man and woman in uniform is to ensure maximum readiness and combat capability of our Air Force. Each of us is a key part of the readiness equation. How well we live up to the demands of our profession depends, in large part, on how well we are trained.

In ATC, we take our responsibility of providing well-trained professionals very seriously. We clearly understand that readiness, in its most basic sense, begins in the classroom. Properly trained and motivated people are as essential to Air Force readiness as spare parts and ammunition.

I know everyone understands the importance of training to the Air Force, especially in today's dynamic, high-tech environment. But do you realize, really realize, how vital your feedback is to the training community and ultimately to the readiness of our forces? Your feedback is a significant part of the yardstick we use to measure training effectiveness.

More importantly, it gives us a vital link to your operational needs and lets us know how we can better help you meet your mission requirements. It is even more critical for new systems such as the B-1B and others where we design new courses from the ground up.

Every supervisor, officer, and NCO alike, should already know about the AF Form 1284, Training Quality Report (TQR). If you are not familiar with the TQR, find out about it. It's your vehicle to tell us whether or not our training is meeting your needs.

I hope every supervisor already knows about our field survery program conducted under guidelines in AFR 50-38, Field Evaluation of Education and Training Programs. Each year, we send out thousands of questionnaires to supervisors of recent graduates of our technical training courses.

When you receive one of these questionnaires, take a few minutes to put some real thought behind your reply. And, by all means, reply! We value a supervisor's opinion very highly. Every Training Evaluation Report ends up on my desk and I can assure you that your opinions receive the attention they deserve.

Technical Training:

IMAGE Briefed at Sheppard PRC

The program review committee (PRC), overseeing Engineering and Services technical training, met Oct. 22-24 at Sheppard AFB, Tex., for its annual review of training for civil engineering.

The committee reviewed courses offered or administered by the Air Training Command technical training centers (TTCs). It is comprised of senior and working-level E&S people, representing HQ USAF/LEE, the major commands, and HQ Air Force Engineering and Services Center.

Maj. Gen. Clifton D. Wright Jr., Director, Engineering and Services, HQ USAF, headed the E&S delegation. Col. Robert G. Gilbert, commander, HQ AFESC, gave the PRC overview. Brig. Gen. Roy M. Goodwin, HQ TAC deputy chief of staff, E&S, was the ranking MAJCOM/DE. Every MAJCOM was represented.

Senior ATC representation included Maj. Gen. Larry N. Tibbetts, DCS/Technical Training. Maj. Gen. Richard W. Phillips Jr., commander, Sheppard TTC, welcomed the conference. Col. Fraine C. Zeitler, commander, and Col. Walter A. Weiss Jr., vice commander, were among the representatives of the 3700th Technical Training Wing. Col. David W. Frutchey, commander, headed the delegation from the 3770th TCHTC. ATC was also represented by each of the TTCs providing training support to civil engineering. Most E&S courses are taught at Lowry, Sheppard, and Chanute TTCs.

A key feature of the PRC was the senior E&S leadership review of Project IMAGE (innovative management achieves greater effectiveness). Many areas being explored by the IMAGE functional reviews will have an impact on future training, particularly:

- Merging of certain skills,
- Changing the concept of equipment operator training, and
- Improved equipment and procedures changing work and scheduling methods.

Maj. Patrick Coullahan, who heads the IMAGE project office, summarized the results of the operations functional reviews, pointing out that "we are going to be changing the way we do business in the future. The training community must know now the directions in which we are heading."

Lt. Col. Paul W. Hains III, chief, AFESC O&M division, addressed the BCE operations organizational concepts developed through IMAGE that will carry BCEs into the 1990s. Conferees were also briefed on the impact of the E&S information management system.

CMSgt. Fred McLeod, HQ AFESC's Readiness directorate, briefed on readiness training. He re-emphasized the need to get more contingency skills into the training provided by ATC, particularly those covered in the War Mobilization Plan, Annex S.

Heritage:
Aviation Engineering Battalions Major Contributors to Victory

Col. Nay and Gen. Wright at the rededication of the marble plaque honoring the IX Engineering Command of World War II.

by H. Perry Sullivan Jr.

A new Engineering and Services Heritage program has been initiated by Col. Marshall W. Nay Jr., dean, School of Civil Engineering, Air Force Institute of Technology, Wright-Patterson AFB, Ohio. A part of Project Warrior, it educates students and faculty on the history, traditions, and achievements of E&S people and organizations.

The program started May 16. Maj. Gen. Clifton D. Wright Jr., Director, Engineering and Services, HQ USAF, rededicated a plaque honoring the IX Aviation Engineering Command of World War II. The command was formed in the United Kingdom before the Normandy invasion, to provide engineering support to the tactical air forces under 9th Air Force.

Living History

The past leadership of Engineering and Services is now being invited to the school. In November, the first guest lecturer was Brig. Gen. Oren O. Price (USAF, Ret.), who retired in 1968 as the deputy chief of staff, Civil Engineering, HQ Air Force Logistics Command. He outlined the history of WW II aviation engineering, formed in June 1940, at Ft. Benning, Ga. Before the end of the war, there were 51 battalions, with 117,851 assigned personnel, employed in all major theaters, including North Africa, Europe, Southwest Pacific, and Asia.

General Price was assigned in September 1940 to the 21st Aviation Engineering Regiment, Langley Field (now AFB), Va. Self-supporting capabilities included personnel, intelligence, operations, supply, military police, signal, medical, and quartermaster service detachments. Engineering battalions included four mobile aviation, three airborne, and a camouflage unit.

When the war began, battalion- and company-sized portions of the regiment went worldwide. The self-supporting concept prevailed only in Europe. General Price, then a captain, went with a company of engineers to Iceland. Other aviation engineering units were assigned to the 8th Air Force in England to build airbases. When General Price moved to England, he helped plan weaving these into the 9th AF as the IX Engineer Command, supporting the Normandy invasion.

Precise tasks were planned for each unit, including recovering former enemy bases, creating new airfields, and contingencies which might arise during the invasion timetable. Security precautions were intense to fully protect the invasion plan, and elaborate measures were taken to deceive the enemy. "If I wanted photo reconnaissance of a given area, they sometimes flew up to four missions to make sure that we didn't tip our hand to the enemy that we were interested in that area," he recalls.

By war's end, IX Engineers, with 1,214 officers and 24,612 enlisted personnel, under the leadership of Brig. Gen. James B. Newman Jr., had put the physical installation platform beneath bombers, fighters, and transport aircraft — including gliders, and had made it possible for the tactical air forces to capture air superiority over Europe, successfully interdict the enemy, and inject needed supplies and equipment through tactical airlift. The price was absorbing enemy attacks, taking casualties, working under attack and post-attack conditions to recover bases, then leapfrogging to the next assignment if required.

The organization disbanded Dec. 31, 1945. The men of the IX Engineers and their fallen comrades were honored May 30, 1946, with a marble plaque, citing their contribution to the allied victory in Europe. Present at the formal dedication was a former aviation engineer, Robert H. Curtin, later to become Director, Civil Engineering, HQ USAF. The plaque was housed in a building set for transfer to the host nation in 1963. As the DCS/Civil Engineering for HQ U.S. Air Forces in Europe, General Price was responsible for getting the memorial to the United States. With the support of Gen. Truman H. Landon, commander, U.S. Air Forces in Europe, and Maj. Gen. A.M. Minton, Air Force Director, Civil Engineering, General Price found the memorial a permanent home. The initiative started when the director of the Civil Engineering Center (now the School of Civil Engineering) was Col. Clarence A. (Bud) Eckert, and culminated under Col. Vernon L. Hastings. General Price brought the plaque by air to Ohio, and June 6, 1963, dedicated it in a formal installation in the lobby of the CE school.

Recollections of an Engineer

During his more than 30 years as an Air Force civil engineer, General Price made some unique contributions to the history of Engineering and Services:

- While assigned to the Air Staff, he wrote the agreement which transferred former Army real estate to the new U.S. Air Force.
- Assigning services to civil engineering then was declined because "we had just established ourselves. We needed to get our feet on the ground and establish professional respectability."
- A manpower need for more fighting wings on line cost the Air Force its own civil engineering capability in the early years, requiring a special category of Army forces serving with the Air Force (SCARWAF)
  - established to meet force beddown and contingency engineering requirements
  - based on the WW II aviation engineering model
  - manned, trained, and organized by the Army, under the operational control of the Air Force
  - abolished after the Korean Conflict as impractical and unworkable, with units returned to the Army, and some SCARWAF people offered the option of transferrring to the Air Force
  - SCARWAF people recovered were the nucleus of a base civil engineering force, formed the "hard way," out of existing manpower authorizations.
- Prime BEEF began after CE troops in the late 1950s

were tasked to deploy to support the U.S. Embassy in Beirut. When few were found to have the required shots, a remedial program of emergency force identification, proper immunization, and standardized training later led to the concept of a deployable emergency engineering force. Later, as director of the civil engineering Operations division at HQ USAF, he helped to formalize the program.

• In Southeast Asia, the Air Force was supported by the Navy for construction contracting management, and the Army for force beddown. But, the Air Force also needed forces comparable to the Aviation Engineering Battalions of WW II, which brought new RED HORSE squadrons.

General Price, a graduate of Michigan College of Mining and Technology, was awarded an honorary doctorate by his alma mater. He now lives with his wife, Thora, at the Air Force Village, San Antonio, Tex. He is an avid "caravan" enthusiast, and tours with his travel trailer for up to 5 months a year.

An Early Aviation Engineer

Most men of the IX Engineers were "citizen soldiers," quickly trained and deployed to their assignments in 1942 and 1943, such as Geiss Dozier, Mexico Beach, Fla., now retired, a Civil Engineering graduate of the Citadel, commissioned through ROTC in May, 1942. He reported to the 829th Aviation Engineering Battalion, Eglin Field (now AFB), Fla., June 10, for training. The unit then deployed to Ft. Dix, N.J., and embarked by convoy from New York August 19, landing at Liverpool, August 31.

The battalion first constructed a heavy bomber base at Eye, England, initially, making the best of poor equipment. New shipments from the CONUS included D-4 and D-7 earthmoving equipment, Galion graders, trucks, and jeeps. Ultimately, the unit completed three runways, one 140' x 6,000' and two of 140' x 4,800', completely enclosed in a 50' perimeter track with hardstands for bombers; ammunition and bomb storage areas; living quarters; T-2 hangars (relocatible steel buildings), and limited supporting facilities. Offices and living quarters were in Nissen buildings, the British version of the Quonset hut.

After transferring to Debach, near Ipswich, they completed a major heavy bomber base, commissioned by late world heavyweight boxing champion Joe Louis.

The unit worked 24 hours a day, 7 days a week, augmented by civilian Irish labor. The battalion had to mix U.S. military engineering practices with those in use in the United Kingdom at the time. Concrete was transferred from mixers to a version of the tractor-mounted frontend loader known as a "tipper." All concrete was driven to the laying site, "tipped" into the forms using a lever attached to the front bucket. Main bomber runways were 8" reinforced concrete. Using three- and four-bag mixers, the mix was transferred to a vintage B4E concrete laying machine, which was almost in constant pour operation. A 20' by 300' strip could be layed in 24 hours. A runway was seven 20' strips wide. As concrete operations continued, other crews surveyed, staked, and graded. After runways were layed, drainage ditches were created, runway lights installed, and taxi strips placed. All bases had complete sewage treatment facilities, potable water distribution systems, and electrical grids. Among the buildings, the operations structure was built of 12" brick.

Col. Nay, left, and Gen. Price examine the map showing airbases built by the IX Engineers.

Battalion strength was 700 to 750. Each company had its own feeding operation, integral to the unit. In addition, the battalion included supply, medics, and a dentist.

Dozier transferred to the 862nd Engineering Battalion, IX Engineers, shortly before D-Day. Held in reserve in case the invading forces failed to break through, the battalion's contingency task was to land at St. Lo and build emergency landing strips and limited operating fields for fighter aircraft. When the invasion was successful, the battalion moved to St. Maria Glies, France, and recovered a minimum operating base. Moving to Liege, the unit repaired runways on five bombed-out former enemy bases and put them in serviceable condition. One former enemy grass airfield was converted to hard runways for C-47s used for bringing in supplies and evacuating wounded.

European campaign runway types included framed rod and bar reinforced concrete, pierced steel panels, and tarpaper. The latter involved running the equivalent of heavy, asphaltic roofing roll material through a tank filled with gasoline, which made the bitumen soft and adherent. Multiple layers could be laid and pressure-rolled quickly over stabilized soil, which had been raised with graders to an adequate draining crown, with all of the same effects as laying sand asphalt.

In Belgium, enemy attacks resulted in runway damage. RRR in WW II included using a crane to dig out the crater, back fill with dirt, and cap with crushed stone and asphalt. Expedient methods also were used when rain-soaked soft spots in runways would not support pierced steel panels. The panels were peeled back, the soft soil was dug out, crushed stone and fill were placed, rolled, and packed, and the steel was replaced.

Dozier was wounded on Christmas day in a bombing raid, in which between eight and 10 men on base were killed. A bomb hit in a troop support area. Dozier heard the whine and "hit the deck." Still, he suffered many small shrapnel wounds, including one which lodged in the bone on his arm. Evacuated to a hospital, he was sent to a rehabilitation center, and put on a returning troop transport in April 1945. He went to an Army Air Force hospital in Coral Gables, Fla., formerly the Biltmore Hotel. After being sent to an Aviation Engineer training site near MacDill AFB, Fla., he was separated from active duty. In civilian life after the war, back home in Dawson, Ga., he worked for a large chemical and mineral company, and invested in broadcasting stations.

Dozier feels that his WW II unit benefitted because he was able to find the best NCOs, who had the latitude to "get the job done." He recalls a veteran career Army master sergeant who functioned as the chief NCO. "There was nothing that he couldn't get done," Dozier recalls.

All enlisted men were black — all the officers were white. Coming out of the Jim Crow southland, they formed an effective group of military professionals, who contributed significantly to the ultimate victory of the Allied forces. In the process, it changed the lives of each person — enlisted and officer. For most of those who survived, it became the single most memorable time in their lives. ★

Ramstein's Civilian Service Unit Celebrates 35th Anniversary

by Maj. (Lt. Col. selectee) Frank J. Destadio

The 7002nd Civil Engineering Squadron, Ramstein AB, West Germany, recently celebrated the 35th Anniversary of its civilian service unit (CSU).

During a ceremony celebrating the anniversary, Maj. Gen. Clifton D. Wright Jr., Director of Engineering and Services, HQ USAF, presented the unit with a letter of appreciation from Gen. Charles A. Gabriel, Air Force Chief of Staff. A reception, honoring the past four 7002nd CES (formerly Civil Engineering Flight) commanders, Colonels Michael A. McAuliffe (1969-74); John C. Sowers (1974-78); James L. Bannwart (1978-81); and James H. Vernon (1981-84) was followed by a formal dinner dance and a German fest.

Col. Robert Gilbert, Commander, Air Force Engineering and Services Center, Tyndall AFB, Fla., along with numerous local German and American dignitaries, also attended the celebration.

The 7002nd has a history of service to the U.S. Air Force dating back to 1950. It has two diverse mission elements. The first is the civilian service unit, sometimes referred to as Germany's RED HORSE Squadron. It has the mission of a mobile construction unit.

Its second mission element is the readiness operations and training center. The center has a quick reaction capability that highlights its mission of providing centralized training for rapid runway repair, Prime BEEF, Prime RIBS, aircraft arresting systems, generators, and joint services interior intrusion detection systems, along with a centralized depot overhaul and Queen BEE supply system.

Ramstein's CSU was originally established as a labor service unit in 1950. The labor service concept was born in 1944 as a method of using the vast manpower and labor pools generated from successful invasions during World War II. By the fall of 1945, some 250,000 people were employed by the United States in labor service units. By 1946, with the discharge of prisoners of war, the labor services manpower dropped to 26,000.

After numerous strength adjustments and changes in roles and missions, USAFE established the German civilian service units in August 1950. Ramstein's CSU began operations the following month.

Following the U.S. Army's example, the CSUs contained technical and guard units. In addition, engineering construction, transportation, aircraft maintenance, communications, and air police squadrons were activated within the CSUs and parallel to U.S. Air Force structures. Over the years, these initial organizations were eliminated until only the engineering construction units remain today.

The 7002nd civilian service unit can trace its history back to the 7329th labor service unit, which was established in September 1950, and placed under the 862nd Engineering Aviation Battalion at Rhein-Main AB, West Germany. The unit moved to Ramstein AB in May 1952. Operational control of the unit was given to 17th Air Force headquarters on Nov. 15, 1959. The unit was designated the 7002nd CEF on May 1, 1971 and received its current designation Oct. 1 of the same year.

The 7002nd was organized and equipped to provide major repair and maintenance capability for USAFE airfields. The unit is nearly self-sufficient, carrying out its mission with 225 civil engineering-trained German national employees, its own vehicle and equipment maintenance capabilities, and food service and administrative personnel.

The unit's mission has grown. Its people are recognized experts in both concrete and asphalt airfield pavements. They also provide heavy repair and construction capabilities, horizontal and vertical, to all USAFE locations. Runway striping, heavy equipment training, logistics functions, and dining facility responsibilities round out the CSU mission.

Development of the readiness operations and training center was accomplished in several phases. Initially, the centralized depot overhaul and Queen BEE supply functions were added to the 7002nd CSU in 1971, officially making it the 7002nd Civil Engineering Flight.

The original scope of operations of the depot overhaul and supply functions has remained unchanged. However, it has grown from a small, isolated military group to a multi-faceted, diversified, quick-reaction asset of the command, managing equipment worth approximately $6.5 million, and 80 U.S. military men and women.

With the addition of the overhaul depot to the 7002nd CEF in 1979, USAFE's Director of Engineering and Services began developing the training center. The Center's mission was to provide rapid runway repair training at all USAFE bases. Initial training concentrated on large crater repairs. The program expanded in 1981 to include small craters and scab

Herr Heinz Krueger cuts the cake as Gen. Wright, Cols. Sowers, Vernon, McAuliffe, and Bannwart observe.

The *Heralds*, a traditional German band.

repairs, minimum operating strip selection criteria, and explosive ordnance disposal.

The readiness center provided technical expertise for the development of the advanced RRR technique for slab flush repair. It has also supported HQ AFESC in numerous areas of RRR research and development.

The squadron also provides realistic, hands-on training for Prime BEEF and Prime RIBS teams throughout U.S. Air Forces in Europe. The training combines theory with practice and, according to command officials, has developed into a superb center, offering the opportunity for USAFE Engineering and Services members to perfect their wartime skills.

During the anniversary ceremony, General Wright recalled the many times the 7002nd responded to urgent construction requirements. "The 7002nd can go anywhere and do anything," the general said. "Unit members have been involved in construction projects in Libya, Italy, Turkey, and West Germany. During the 1972 relocation of USAFE headquarters from Wiesbaden to Ramstein AB, 7002nd men and women renovated space for the command section in minimum time, so that normal operations could begin immediately."

The general also said the 7002nd not only excels in construction activities, but in building people and promoting the growth of today's Air Force leaders. "Many colonels, generals, and senior and chief master sergeants advanced their careers through the 7002nd," he said. "In the past 5 years, one USAFE and two Air Force Goddard Medal winners came out of your unit. That's an achievement you can be proud of."

In a letter of appreciation, General Gabriel wrote, "In addition to the many projects accomplished by the CSU, the unit has provided a bridge of friendship between Americans and Germans that has reinforced the partnership that we share in the defense of a free Europe."

Brig. Gen. Joseph A. Ahearn, Deputy Chief of Staff, Engineering and Services, USAFE, told the audience that the 7002nd has added another dimension to the USAFE troop labor effort. He cited recent security enhancement projects to increase physical security for all USAFE personnel, and support given to the 819th RED HORSE Squadron to help ensure completion of the Spangdahlem AB, West Germany, alternate launch and recovery surface for exercise SALTY DEMO.

"This exercise tested base recovery capabilities after attack; procedures and methods of repair; construction of the European distribution system aircraft parking ramp at Zweibrucken AB, West Germany, to match the delivery of new C-23 aircraft; and numerous other asphalt resurfacing projects throughout the command," General Ahearn said. "The 7002nd is called upon for the biggest and toughest projects in the command. You always come through on time and within authority. You are recognized throughout the command for your spirit and pride of excellence."

Gen. Charles L. Donnelly, Jr., Commander-in-chief, USAFE, in a letter of appreciation, praised the unit for its support to allied airpower. "You have built a tradition, powerful by any measure of Air Force readiness and rich in the fulfillment of excellence. Your work transcends to the military deterrence that has meant peace in Europe since the end of World War II." ★

Maj. (Lt. Col. selectee) Frank J. Destadio, commander of the 7002nd Civil Engineering Squadron, is from New Haven, Conn. He received his Air Force Commission after earning his bachelor's degree in Civil Engineering from the University of Connecticut. He went on to receive a master's degree in Systems Technology from the University of California at Los Angeles in 1975. He previously served at Griffiss AFB, N.Y.; Hickam AFB, Hawaii; Wright-Patterson AFB, Ohio; Tel Aviv, Israel; and Andrews AFB, Md. He is a member of the Society of American Military Engineers and the Services society and is registered in Connecticut.

ESCCMP

Promotions and Reassignments

Ina Anderson, (Elmendorf) to GS-1173-12, Housing Mgr (Elmendorf) P
Myron Anderson, (Tyndall) to GM-0819-14, Environmental Engr (Tyndall) P
Lloyd R. Arnold, (Robins) to GS-801-13, Chief, Tech Design (Robins) P
Eula Belk, (Ramstein) to GS-1173-12, Housing Mgt Spec (Ramstein) P
David Belyea, (Loring) to GS-0801-12, Chief, Tech Design (Loring) P
John Bergerud, (Clark) to GM-0801-13, Chief, Tech Design (Bolling) R
Bart Bloemhard, (Nellis) to GS-1173-12/13, Housing Mgt Spec (Langley) P
Jury Brown, (Davis-Monthan) to GM-0801-13, Chief, Engrg/Env Plng Br (Davis-Monthan) P
William Bryan, (George) to GM-0801-13, Chief, Engrg/Env Plng Br (Moody) P
Delores Curry, (Clark) to GS-1173-10, Housing Mgr (Mather) P
Lawrence Day, (Loring) to GM-0801-13, Chief, Engrg/Env Plng Br (Loring) P
John Detweiler, (AF Academy) to GM-0801-13, Chief, Sensor Site Branch (Peterson) P
Marilynn Dobeck, (Randolph ATC) to GS-1173-11, Housing Mgr (Randolph) P
William Dupee, (Davis-Monthan) to GS-0801-12, Chief, Env/Contr Plng (Davis-Monthan) P
Frederick C. Esposito, (Andrews) to GM-0810-14, Civil Engineer (AF/LEEC) P
James Fester, (Carswell) to GS-0801-13, Chief, Engrg/Env Plng Br (Carswell) P
Charles Field, (Scott) To GM-0801-13, Chief Engineer (Altus) R
David M. Garcia, (Tinker) to GS-0801-12, Supv Env Engr (Yokota) P
Darwin Garringer, (Altus) to GS-0801-12, Chief, Tech Design (Altus) P
Lucien Gillham, (Little Rock) to GS-0801-12, Chief, Contr Mgt (Kadena) R
Miles Gray, (Tyndall) to GM-0801-13, Design & Constr Br (Pentagon) R
Michael Harris, (McClellan) to GM-0801-13, Chief, Env/Contr Plng (McClellan) P
William Hogan, (Randolph OCPO) to GS-1173-12, Housing Mgt Spec (Randolph ATC) R
Arabelle Horton, (Randolph ATC) to GS-1173-13, Housing Mgt Spec (Pentagon) P
Richard Hudson, (Shaw) to GS-0801-12, Chief, Tech Design (Shaw) P
Katherine Hurt, (Lajes) to GS-1173-11, Housing Mgr (Hanscom) R
Charles Johnson, (Randolph) to GM-0810-14, Civil Engineer (AF/LEEC) R
Lewis Johnson, (Luke) to GS-0801-12, Chief, Engr Design (Williams) P
Deana Lande, (McGuire) to GS-1170-09, Realty Ofcr (Bolling) P
Larry LeMar, (Youngstown) to GM-0801-13, BCE (Pittsburgh IAP) P
Bill Lynch, (Randolph OCPO) to GM-0801-14, Dir O&M (Randolph ATC) R
Rabinder Mahendra, (Clark) to GM-0801-13, Chief, Engrg/Env Plng Br (Clark) P
Mary Maier, (George) to GS-1173-11, Housing Mgr (George) P
John Mayes, (AFRCE Atlanta) to GS-0808-13, Architect (AFRCE CR) R
Lloyd Mullen, (Mather) to GS-0830-13, Mechanical Engineer (Kelly AFCOMS) R
Richard Munch, (Little Rock) to GS-1170-09, Realty Ofcr (Misawa) P
Helen T. Pate, (Shaw) to GS-1170-11, Realty Ofcr (Clark) P
Miles Pelton, (Dover) to GM-0801-13, Chief, Engrg/Env Plng Br (Dover) R
Michael Perza, (Dover) to GM-0801-13, Chief, Engrg/Env Plng (Dover) P
Herman Prock, (Altus) to GM-0801-13, Dep BCE (Altus) P
Jack Rolfe, (George) to GS-0801-12, Chief, Tech Design (Anderson) P
Ralph Rosales, (SARPMA Ft. Sam) to GM-0801-13, Chief, Tech Design (SARPMA Ft. Sam) P
Cesar Silva, (Kelly ESC) to GM-0801-13, Chief, Program Requirements (Kelly ESC) P
Glenda Simmons, (Yokota) to GS-1173-11, Housing Mgr (Yokota) P
Ellyn Sparrow, (Hill) to GS-1173-10, Housing Mgt Spec (Randolph) P
John Stevens, Jr., (Brooks) to GS-0810-12, Supv Civil Eng (Randolph) P
June Stockli, (Lakenheath) to GS-1173-11, Housing Mgt Spec (Ramstein) R
Lawrence Wanningman, (Spangdahlem) to GS-1173-11, Housing Mgr (Lowry) R
Lou D. Weber, (Norton) to GS-1170-09, Realty Officer (Norton) P
Earle Whittington, (Pease) to GS-0808-12, Architect (AFRCE Atlanta) P
Alvin Yancy, (AF/LEE) to GS-1173-12, Housing Mgr (Bentwaters) R
Anthony Zugay, (Ramstein) to GM-0801-14, Chief, Constr Mgt (Ramstein) P
John B. Zukosky, (Langley) to GS-0808-13, Architect (Kelly AFCOMS) R

tecnotes

ENVIRONICS STUDIES —

• ***In situ* biological treatment** is being tested by HQ AFESC, in a joint effort with the Environmental Protection Agency, for clean-up of contaminated soil and groundwater. This technology, employed at Kelly AFB, Tex., involves supplying nutrients and oxygen to the indigenous biological organisms at the contaminated site. With these supplied nutrients and oxygen, the organisms are then able to degrade the contaminants. The site has been characterized and preliminary results look promising. An interim report will be available by January of 1986, with a final report available by late 1986.

• **Geophysical and soil-organic-vapor geochemical** methods are being investigated by HQ AFESC to detect subsurface contamination as less costly alternatives to monitoring wells. The geophysical methods measure electromagnetic and seismic parameters which relate to the geological features of the soil. The SOV methods measure volatilized organic chemicals in the gases between soil particles and relate to organic contamination in the soil or groundwater. On-site tests have been conducted at Holloman AFB, N.M., and Phelps-Collins (ANG) AFB, Mich. Further tests are scheduled in 1986 for Robins AFB, Ga., and two additional Air Force sites.
(HQ AFESC/RDVW, Lt. Heyse, AUTOVON 970-4628)

AIR FORCE INDUSTRIAL WATER TREATMENT (IWT) PROGRAM (AFR 91-40) — Corrosion test coupons used to evaluate the effectiveness of base-level IWT programs are now available from the Pioneer Laboratory, 11 East Olive Road, Pensacola, Fla., 32514. Also available are replacement items for all "test kits" provided by Pioneer for the IWT testing program. Like other laboratory supplies and equipment, the corrosion test coupons and kit components are available at no cost to the base (on request) under an HQ AFESC contract. (HQ AFESC/DEMM, Mr. Myers, AUTOVON 970-6358)

HARDENED HOSES — The hardening program for multi-purpose RRR excavators requires shrapnel protection for vital hydraulic systems. While most hydraulic lines can be guarded with metal fabrications, connections over the two-piece boom and stick-mounted attachments required flexibility. Ballistics testing revealed that XT-6 hose, manufactured by Caterpillar Tractor Co., was the only sample to survive the tests at 2,600 fps. With an inside diameter of 1¼", XT-6 hose is now being installed on critical locations of RRR excavators. Four smaller sizes of XT-6 hose will be introduced by January 1986, and data for all sizes is listed below:

I.D.	Bending Radius	Wt./ft.
1¼"	17½"	2.71 lb.
1"	13"	1.95 lb.
¾"	10½"	1.55 lb.
½"	8"	.78 lb.
⅜"	6"	.63 lb.

(HQ AFESC/RDCR, Mr. Alexander, AUTOVON 970-6326)

EFFECT OF HIGH PRESSURE AIRCRAFT TIRES ON ASPHALT CONCRETE PAVEMENTS — The deployment of the F-15 C/D aircraft with its 355 psi tires may increase the rate of permanent deformation (rutting) on taxiways and channelized traffic areas constructed of or overlaid with asphalt cement concrete. HQ AFESC/RD is conducting accelerated traffic tests on in-service and specially-constructed test sections to define the rate of permanent deformation from the F-15 C/D compared to the F-4. Initial tests will be conducted in early FY 86 at several sites in Florida where the high temperatures are expected to produce the greatest problems. (HQ AFESC/RDCS, Maj. Costigan, AUTOVON 970-6493)

BARRIER CABLE IMPACT PADS — The search is continuing for a material that will perform satisfactorily under barrier cables. Three materials showed some promise during recent tests:

• Master Plate 100 (formerly Anvil Top 100) — erodes under the cable, but not as fast as conventional concrete. Initial tests indicate the material may last as long as 3 years before repair is needed.

• Preformed Polyurethane Pad — experienced problems due to warping and cracking. A new design will be installed at Seymour Johnson AFB, which hopefully will eliminate these problems.

• Silica Fume Concrete — performed well in recent tests.

Further guidance will be issued in the near future.
(HQ AFESC/DEMP, Mr. Greene, AUTOVON (970-6334)

DIRECT DIGITAL CONTROL (DDC) SYSTEMS directly operate heating, ventilating, and air conditioning (HVAC) control devices, such as valves or damper actuators, using a digital computer. The computer uses stored program(s) and real-time sensor measurements. The increased capabilities and declining cost of microcomputer products have resulted in the development and marketing of DDC systems having a great potential for conserving energy and lowering costs in the HVAC control field. No standard currently exists for a procurement specification. However, a number of issues need to be researched and resolved before the Air Force moves into this new generation of HVAC controls. Application of DDC systems is prohibited except under special pilot projects. Joint Army/Air Force ETL 1110-3-354, dated Dec. 7, 1984, established criteria for DDC pilot project approval and requirements. The Navy has concurred with the prohibition. The moratorium does not apply to control components furnished by the manufacturer integral to the equipment and installed at the factory. (HQ USAF/LEEEU, Mr. Williams, AUTOVON 227-6237)

CORROSION CONTROL —

- **Increases in the efficiency** of your steam boiler operation are possible by following the new boiler control limits found in table 4-5 of AFR 91-40, *Industrial Water Treatment.* Excessive blowdown sends energy down the drain as well as causing greater chemical treatment cost.
- **Copper Erosion —** The HQ AFESC Corrosion Analysis Team recently found a case where sections of copper pipe were having to be replaced every month due to severe erosive corrosion. The flow velocities in the pipe were approximately 20 fps, well in excess of the maximum (4 fps) recommended. Consequently, material from the pipe walls was being lost at a high rate. Increase copper pipe diameters to ensure flow velocities don't exceed 4 fps. Also, maintain water temperatures as low as possible to further prevent corrosion.
- **Cathodic Protection —** The Corrosion Analysis Team recently observed an elevated water storage tank, in which the contractor had correctly connected one anode string to the rectifier positive terminal, but had mistakenly connected a second anode string to the rectifier negative terminal *rather than the positive.* Basically, the "positive" anodes were protecting the "negative" anodes, but the tank was corroding away with no protection. Contractor performance must be carefully monitored. A survey of current potentials (voltage) in water tanks is required annually by AFM 85-5, *Maintenance and Operation of Cathodic Protection Systems.*

(HQ AFESC/DEMM, Capt. Rojko, AUTOVON 970-6355)

DESIGN AID — With major changes and redesignations of master plans upcoming, a need exists to develop a timely and economical method of performing revisions to the master plan tabs. The Mylar® wash-off process is the answer. The process usually ranges from $25 to $50, depending on the size of the original, and can normally be completed in 48 hours or less under a services contract (AF Form 9) with a reprographic firm in your area. The process produces a working reproducible copy from an original drawing or master plan tab. It has an excellent drafting surface for ink or pencil. The original image may be easily removed with a moist eraser. The erasing process does not leave a scar or shadow on the original. In most cases the wash-off process can produce a nearly restored original, reducing the many tedious man-hours spent annually trying to update damaged originals. (TAC — 1stCSG/DEEE, TSgt. Clearwater, AUTOVON 432-4112)

DRY CHEMICAL FIRE EXTINGUISHERS — Langley AFB is in the process of replacing its maintenance-intensive water and CO^2 extinguishers with virtually maintenance-free Halon and dry chemical extinguishers. The money normally spent on expensive hydrostatic testing and reservicing of the water and CO^2 extinguishers will be invested in new Halon and dry chemical extinguishers, resulting in substantial savings for the Air Force. Halon and dry chemical extinguishers are highly recommended for use around electronic equipment such as computers, because water is corrosive and CO^2 extinguishers have less extinguishing capabilities. (TAC — 1stCSG/DEF, Mr. Jarvis, AUTOVON 432-2807)

CESMET tips

Fire Department Training Areas — In order to properly train firefighters to control and extinguish fires involving aircraft that carry varying amounts of fuel and highly critical cargo, your live cargo training area is a very important facility; however, the *majority* of those observed by CESMET during the past 2 years do not measure up to the challenge. In addition, there is an increase in the potential for pollution violation notices from federal or state agencies to cease live fire training, due to pollution of ground water and contamination, and this would be a source of embarrassment to the Air Force. The mission can ill afford any restrictions to reduce or halt these training activities. (HQ AFESC/DEF, CMSgt. Winningham, AUTOVON 970-6162)

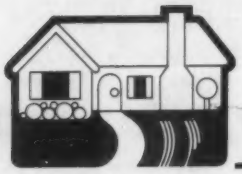
Contracting — What's the relationship between the engineering and contracting community at your base? Is it a sound, professional, working relationship, or do you find it is a "strained" relationship? If you have a good working relationship, that's great; however, if yours is "strained," action needs to be taken to improve the relationship. At the bases we have visited and found a "strained" relationship, lack of communication and understanding of each others duties, roles, and responsibilities seemed to be the main causes. So, if you have a relationship problem, start talking with each other and try to understand where the other person is "coming from." Also, besides "talking" to each other, try to *listen* to the other person. He/she probably has something worthwhile to say. Only through a sound, professional working relationship, based on mutual respect, understanding, cooperation, and hard work can the very large Air Force engineering and contracting job be effectively accomplished. Work as a team, not as individuals, and succeed together! (HQ AFESC/DET, Maj. Foley, AUTOVON 970-6138)

Requirements — Have you identified all of your requirements? Funding in the operations and maintenance area has been good in recent years. We find that many Engineering and Services operations have no *identified,* unfunded requirements going into the last quarter of the fiscal year. As we scratch the surface, we find requirements that haven't been identified, such as: dormitory upgrade and replacement furnishings (quality of life) for the living quarters of young airmen. Identify your requirements early in the fiscal year! Do not assume that the reviewer knows the details. Descriptions and impact statements should be comprehensive to ensure the reviewer has a good understanding of the requirement. If this item became unfunded as a result of a trade-off to finance a higher priority item, identify the item which was funded. The bottom line — let the base financial community know what your unfunded requirements are! Do your homework early and you may be pleasantly surprised next September. (HQ AFESC/DET, Maj. Ponsford, AUTOVON 970-6203)

Mortuary Affairs — There are more than 300 Congressional inquiries each year into the conduct of the Air Force mortuary affairs. It's easy to receive more *visibility* than mortuary affairs officers would willingly solicit, particularly with cases that receive attention long after the case is considered closed. Thorough attention to case file documentation is essential. In recent CESMET visits, we've noticed errors that could be avoided with a little attention to detail, including not properly signing off. (See AFR 143-1, par. 3-4.) We've seen case files remaining open for 6 to 8 months with no effort being made to request extensions. All personal property actions should be completed no later than 45 days after appointment of the summary court officer. If, for whatever reason, that cannot be accomplished, then request the appropriate extensions from your MAJCOM or HQ AFESC. [See AFR 143-6, par. 1-2, c(3)(c).] We've also seen mortuary affairs officers sending case files to the base commander for signature and closure without legal review by the staff judge advocate. It just makes sense to have the staff judge advocate review the entire case file for appropriate action. [See AFR 143-6, par. 1-2, c(3)(e).] (HQ AFESC/DET, Maj. Mitchell, AUTOVON 970-6295)

Stressing Reliability and Maintainability...

From Cradle to Grave



by Brig. Gen. David M. Cornell

Reliability and maintainability (R&M) are primary objectives in the design, production and modernization of aircraft, weapons systems, and related components. These objectives apply equally to real property facility assets; however, there is overwhelming evidence to suggest that R&M has not been adequately addressed in the past during the planning, design, and construction of Air Force facilities and utilities systems. Low initial investment cost has traditionally been the overriding consideration for new construction, but this short-sighted approach often exacts a high operations-and-maintenance price over the life of the facility. In addition, there are costs associated with resulting facility downtime and accelerated deterioration that ultimately impact work force well-being and productivity. The long-term cost of shortchanging R&M will far outweigh initial savings.

Base civil engineers continue to face difficult manpower and resource management challenges as workloads increase without offsetting growth in capability. While it is true that there are serious manpower and resource shortages today, there are also serious R&M problems that amplify these shortfalls. In fact, it could be argued that if R&M had been properly addressed in the past, we would not have manpower and resource problems today.

The question then is how to attack the R&M problem and help head off future problems. Obviously, we cannot go back and rebuild existing facilities to correct past deficiencies; however, we can insist that R&M features be given priority consideration in all future plans and designs for new construction and for renovation of existing facilities. A logical approach must include the identification of facility systems and components that have historically been the greatest drain on manpower and resources, and the best source of information comes directly from the craftsmen and operators who live with our past planning design and construction shortcomings. The people who must operate and maintain these inefficient facilities are our best qualified authorities and they can quickly point out R&M problems that generate repeated failures and outpouring of resources year after year. Another source of information for identification of key R&M problems exists in past records of service calls, utility bills, and contract repair projects. Facility downtimes, repeated system failures, and cost trends provide sound clues to past R&M oversights in planning, design, and construction.

A review of the situation in Air Force Logistics Command (AFLC) prompted this command to include a special R&M annex and checklist in all project books, with instructions and guidelines that specifically address R&M issues. This annex forces the planner and designer to focus on materials, methods, and system components to enhance R&M over the life of the facility. Below is a list of typical considerations:

- **Exterior finishes** — Specify exposed gravel finishes, fluted concrete, or other durable surfaces that are both architecturally pleasing and maintenance free.
- **Interior finishes** — Use low-maintenance, high-durability finishes, such as vinyl wall coverings, rather than paint. Install chair rails, wainscoting, and corner protectors in areas of heavy traffic and high use.
- **Windows** — Choose metal casing and sash with baked-on, dipped, or anodized finishes for low maintenance, and double glazing for energy efficiency and noise attentuation.
- **Roofs** — Consider pitched roofs whenever feasible for fewer leaks, improved insulation for energy efficiency, and longer cycles between major repairs.
- **Mechanical systems** — Incorporate centralized monitoring, control, and maintenance points; provide easy access features for operations and maintenance.
- **Utilities distribution systems** — Loop systems for backfeed capabilities; provide adequate shutoff points for safe, effective troubleshooting, sectionalizing, and repair.
- **Streets and roads** — Plan for sufficient drainage to prevent base failures and surface potholes. Include adequate curbing and/or shoulders to prevent raveling of pavement edges.
- **Specifications** — Forego traditional boiler plate and unnecessary restrictions. Streamline; use commercial standards to

encourage off-the-shelf materials, systems, and components.

• **Corrosion control** — Use non-metallic components for buried utilities wherever possible. Install cathodic protection on metal components buried in soil. Also consider boxed utility delivery systems in areas where ease of access is required. Ensure protective coatings are appropriate for the environment.

The same considerations would apply to renovation projects for exterior and interior finishes, roofs, windows, etc., as noted above for new construction. In addition, renovation work provides opportunities for other R&M improvements, such as:

• Change-out of worn, obsolete, and inefficient utility systems and electrical/mechanical equipment with modern, reliable, and easy-to-maintain systems. Substantial savings are gained by resulting R&M gains.

• Installation of adequate drainage or sump capabilities at points of chronic pavement failure. Not only will R&M be improved, but so will the attitude of drivers who must travel that route. (Improved R&M has a great payoff in terms of base civil engineer (BCE) image.)

These are all basic, common sense considerations — but it is surprising how often they will be overlooked without benefit of reminders and development of a mind set that considers R&M throughout the life of each facility from conception through planning, design, construction, final acceptance, and beyond. It is essential that the following be incorporated as part of the total process:

• R&M awareness during project development.

• Close scrutiny during every stage of design and associated reviews.

• Screening of proposed construction materials, finishes and systems accompanied by realistic evaluation and testing of new or untried systems and materials.

• Strong quality assurance and control during construction.

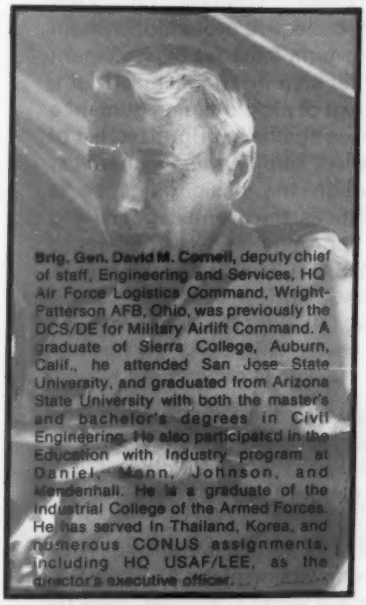
• Evaluation after acceptance and occupancy.

• Documentation of successes and failures (lessons learned/cross-feed).

• Periodic R&M workshops to educate and motivate.

Our future success and survival demands that R&M be stressed from cradle to grave. It is no longer realistic to expect additional manpower or funding to support old, inefficient approaches to facility design, construction, operation, and maintenance. Today, Air Force civil engineers are being challenged with the thesis that we do not have a manpower, transportation, or supply problem. What we do have, however, is an R&M problem of major proportions. The formula for dealing with current shortfalls and future savings must include improved R&M for facilities and utilities systems. This must become integral with every ongoing program that affects facility repair, renovation, or new construction.

In short, reliability and maintainability have become co-equal partners with the old standbys of cost, schedule, and quality.★



Brig. Gen. David M. Cornell, deputy chief of staff, Engineering and Services, HQ Air Force Logistics Command, Wright-Patterson AFB, Ohio, was previously the DCS/DE for Military Airlift Command. A graduate of Sierra College, Auburn, Calif., he attended San Jose State University, and graduated from Arizona State University with both the master's and bachelor's degrees in Civil Engineering. He also participated in the Education with Industry program at Daniel, Mann, Johnson, and Mendenhall. He is a graduate of the Industrial College of the Armed Forces. He has served in Thailand, Korea, and numerous CONUS assignments, including HQ USAF/LEE, as the director's executive officer.

Directorate of Engineering and Services

Current Emphasis

PLANS AND PROGRAMMING

A Memorandum signed by Under Secretary of the Air Force Aldridge states policy for planning of future space systems by the Air Force:

> "The Air Force policy is to ensure that the unique capabilities that can be derived from the presence of military man in space shall be utilized to the extent feasible and practical to enhance existing and future missions in the interest of national security objectives."

It is the first formal policy statement by the Air Force recognizing the potential use of manned military systems/platforms. There are important implications for Engineering and Services (E&S). To help prepare the E&S career fields for a potential role in operating, maintaining, and supporting space-based "facilities," a new AFIT Space Facilities Engineering master's degree program is being developed as a specialty option within the AFIT Graduate Astronautical Engineering program. The first E&S students should enter this program in the summer of 1986.(HQ USAF/LEEX, Col. Choate, AUTOVON 225-7744)

Education-with-Industry with the RAND Corporation — The Air Force Institute of Technology (AFIT) recently established an E&S Education-with-Industry (EWI) Program at the RAND Corporation in Santa Monica, Calif. The program will begin in August. The objective of the new EWI program is to expose selected civil engineers to studies and analyses in progress at RAND, which address future threat environments, theater warfare, advanced aerospace vehicle technologies, and emerging basing concepts — all of which have implications for future operational E&S mission requirements and capabilities. A senior captain/junior major will fill the position and is projected to be placed on the E&S planning/programming staff at a major command or HQ USAF, upon completion of this tour. For further information, contact AFMPC, Palace Blueprint, AUTOVON 487-3451. (HQ USAF/LEEX, Mr. Aimone, AUTOVON 225-7774)

Facility Hardening Criteria — Observers at a recent air base survivability demonstration noted that a significant portion of the base population had no more protection from enemy bombs than sheet metal siding, hollow block masonry, or reliance on the hope that "one won't hit near my building." Efforts are underway to improve this situation, including procurement of survivable collective protection system (SCPS) prefabricated shelters, MAJCOM revetment programs, and a long-term initiative to implement balanced Air Force facility hardening policy and design criteria. The first step in establishment of a comprehensive facility hardening policy came in May, with the development of programming guidance for Air Staff and MAJCOM use, which tabulates desirable facility hardness against a prioritized list of facility types *and* by geographical threat area. Hardness levels are *hardened, semihardened, chemical warfare protected, splinter protected, and siting considered.* Although the basic guidance is unclassified, distribution has so far been limited to MAJCOM planning offices, the eventual goal being specific programming, design, and construction criteria published in appropriate 86- and 88-series manuals. For more information, contact your MAJCOM Plans shop. (HQ USAF/LEEX, Lt. Col. McNickle, AUTOVON 225-7744 and HQ AFESC/RDCS, Mr. Hayes, AUTOVON 970-6365)

CONSTRUCTION

Future USAF Construction Cost Estimating and analysis is being shaped by the Construction Cost Management Group, which provides guidelines and tools for long-range cost management, including: independent cost estimates, cost studies, cost and economic analyses, special studies, and is developing new cost analysis methods and tools. (HQ AFESC/DEC, Ms. Gregory, AUTOVON 970-6230)

The Automated Air Force Construction Pricing Guide has been installed at all MAJCOMs and AFRCEs, allowing development of AF Form 1178s (Cost Estimate Worksheet) and conversion of the AF Form 1178 data to Block 9 of the DD Form 1391. The program was developed for the Wang computer, uses the

Programming, Design, and Construction (PDC) system data files, and will be included as part of the base-level WIMS/SIMS software. (HQ AFESC/DEC, Mr. Burns, AUTOVON 970-6263)

Draft AFR 89-1, *Design and Construction Management,* sent to the MAJCOMs, AFRCEs, and other organizations on Oct. 29 for review and comments, provides basic guidelines for design and construction management of all Air Force and Air Force Reserve projects except Family Housing. It also encourages professionalism throughout the Engineering and Services community, and allows maximum management flexibility by the MAJCOMs. This approach commits the MAJCOM/DEs to develop a supplemental regulation for execution of design and construction within their command, and HQ USAF/LEEC to issue annual design and construction guidance with the most recent Congressional changes. (HQ USAF/LEECD, Capt. Cullison, AUTOVON 225-8192)

PAVEMENTS

General Provisions for Airfield Pavement Design, AFM 88-6, Chap. 1, is being revised to reflect recent changes in design criteria, including using a mixed traffic analysis, consideration of the F-15 C/D/E and B-1 aircraft, and a more realistic design life.*

Design of Rigid Airfield Pavements, AFM 88-6, Chap. 3, is being revised. The revision will incorporate the mixed traffic design procedure and latest design criteria. In addition, guidance is included on prestressed, fibrous, and continuously reinforced concrete pavements. The manual is in publishing.* *(HQ AFESC/DEMP, Mr. Greene, AUTOVON 970-6334)

IMAGE WINDOW

AFR 85-1 Tiger Team — The Project IMAGE requirements and logistics Workshop recommended a Tiger Team scrub-down of AFR 85-1, to include the project's current and future results. At the first Tiger Team meeting Sept. 30—Oct. 4 at HQ AFESC, were Bob Gagne, HQ SAC/DER; SMSgt. Joe Morales, HQ TAC/DEMG; Ed Dokes, HQ ATC/DEMG; Lt. Col. John Wyatt and SMSgt. Billy Scruggs, HQ USAF/CESMET; and CMSgt. Ken Sharp, SMSgt. Al Redmiles, and MSgt. George Zielinski, HQ AFESC/DEMG. Items recommended were:

- Eliminate non-critical compliance items (e.g., communications requirements, frequency, and content of status briefings, etc.);
- Eliminate optional wall charts and BCE taxi system;
- Redesign AF Form 332 to accommodate maintenance and repair processing;
- Incorporate the work authorization list (WAL) into the collection work order number (CWON) list;
- Provide more flexibility in SMART;
- Eliminate dollar restrictions on major construction job orders;
- Provide more emphasis on the recurring work program;
- Delete AF Form 1135 and 1255.

Another Tiger Team meeting will complete the scrub-down. (SMSgt. Redmiles, HQ AFESC/DEMG, AUTOVON 970-6396)

IMAGE Year 1985 — Problem solving for base civil engineers included:

- A requirement for 3,700 general purpose vehicles was validated, focusing on one vehicle for each work crew. MAJCOMs, bases, the Air Staff, and HQ AFESC must systematically work to lease and acquire the needed vehicles.
- A contract study of the BCE tools, communications, warehousing, and workplace environment will be done by Booz-Allen & Hamilton at 14 USAF bases and 10 private sector activities to help identify the most productive resources for performing BCE jobs. The study started in November and culminates in August.
- All 21 functional areas of Operations have been reviewed, and key recommendations made.

IMAGE is a product of base and MAJCOM-level creative dialogue with HQ AFESC and the Air Staff.*

IMAGE Functional Reviews for 1986 — Emphasis shifts in Project IMAGE Functional Reviews for 1986 from BCE Operations to BCE Engineering, Housing, and Financial Management functions. Please

forward any ideas to improve these BCE functions to HQ AFESC/DEMG, Tyndall AFB, Fla. 32403.*
*(HQ AFESC/DEMG, Maj. Coullahan, AUTOVON 970-6490)

LOGISTICS

Overseas Supply, Improvement Efforts — West Coast Overseas Purchasing Activity (WESCOP), an Air Staff/AFLC/PACAF initiative to improve logistics support to PACAF Civil Engineering organizations, was implemented in October. Located at McClellan AFB, it is operated by AFLC and initially staffed by 11 PACAF-funded personnel. It is designed to reduce excessive material pipeline times for civil engineering local purchase items that caused unacceptable delays of material in PACAF. Personnel from the Air Staff, AFLC, and PACAF met, evaluated options, and drafted a memorandum of agreement outlining the responsibilities of all activities involved in the test. The operation will initially provide support to Clark AB, Philippines, for 6 months, with results being monitored, evaluated, and reported to the Air Staff, to determine the overall effectiveness of the operation. If the test proves successful, action will be taken to expand support to the other PACAF bases and to explore the establishment of a similar activity on the east coast to support USAFE operations.*

Civil Engineering Materiel Acquisition System (CEMAS) is approved as the standard civil engineering inventory management system, supplementing today's supply support for the base civil engineer. This joint HQ USAF/LEE/LEY/RDC initiative was successfully tested at Tinker AFB, Okla., with materiel response times appreciably better than other support systems now in use. CEMAS will not only increase materiel responsiveness, but it will also enable management to make better use of resources in support of the vital real property maintenance mission. Key features of the CEMAS are:

- Automation of bills of materials;
- Complete asset visibility and automation of all materiel transactions;
- Automatic issue of residue assets at time of requisition submission;
- Complete "cradle to grave" materiel audit trail.

Worldwide implementation of the system is scheduled to begin with the Work Information Management System (WIMS) and will take 3 years to complete. Interfaces between base supply, the new base contracting automated system (BCAS), and the new civil engineering Work Information Management System (WIMS) are now under review. Additionally, the areas of training, documentation, implementation/conversion (I/C), and other program requirements are being worked through a dedicated Air Staff/MAJCOM/Base working group concept with the Data Systems Design Office (DSDO) working all required software maintenance and enhancements. The newest CEMAS operation was implemented in October at Kirtland AFB, N.M., and is now operational. The next scheduled implementation is for early 1986 at Hickam AFB, Hawaii. Further implementation is being held pending the WIMS computer buy decision. The successful operation and implementation of CEMAS will provide the base civil engineer with required supplies in his support of the mission, both today, and into the future.*
*(HQ AFESC/DEMG, Lt. Col. Wadlington, AUTOVON 970-6386)

HOUSING

Financial Reporting System — HQ AFESC/DEMG is currently testing a new military family housing (MFH) financial reporting system at Kirtland AFB, N.M., and Edwards AFB, Calif., and planning is under way to revise the base operations and maintenance (O&M) reporting criteria. Our goal is to simplify, reduce redundancy in data collection, cancel cost reporting, and use accounting expense and obligation data. The MFH report is scheduled for implementation in FY 87 with O&M scheduled in FY 87/88. (HQ AFESC/DEMG, Ms. Bentz, AUTOVON 970-6393)

ROOFING

Durable Roof Systems — AFESC is investigating the use of easily applied roof systems for small permanent facilities (1,000-5,000 square feet). The intent is to develop selection and application guidance so civil engineers can order and install these systems with in-house personnel. Primary

application of the guidance will be for reroofing facilities at remote and/or high security areas or for small low-priority facilities on any Air Force base or site. These roofing systems can also be used where bids for contract reroofing are traditionally expensive and hard to obtain, due to the size and/or location of the facility. (HQ AFESC/DEMM, Mr. Firman, AUTOVON 970-6353)

AWARDS

General Thomas D. White Environmental Awards for 1985 (AFR 900-45) — Entries are due at HQ USAF/LEEV by March 15, 1986. A Personal Award for Environmental Quality has been added to the ongoing categories of Base Environmental Quality, Base Natural Resources Conservation, and Personal Award for Natural Resources Conservation. All potential candidates should be submitted to ensure that our people and their good work are recognized. (HQ USAF/LEEV, Dr. Clark, AUTOVON 297-3639)

CAREER CORNER

Intern Programs — During the first year of recruitment for interns, the ESCCMP career team has filled five HQ USAF/LEE intern positions: two in Housing, two in Services, and one in Real Estate. Under the PALACE ACQUIRE program, a separate program, we have an additional 46 engineering and three architect interns on board and are finalizing the placement of the last two positions. Selections for the five PALACE ACQUIRE Housing/Services/Realty positions are currently being made. The ESCCMP team has begun promoting the GS-05 engineering interns who have successfully completed their accelerated promotion training requirements to the GS-07 level. The ESCCMP team is now awaiting next year's quotas to begin recruiting for these positions.*

Professional Registration — Beginning Oct. 1, 1986, professional engineering and architecture registration will be a mandatory requirement for about 300 positions managed by the ESCCMP. These positions are chief, Engineering Design section and chief, Engineering/Environmental Planning branch, at base level; chief, Engineering Design section, senior engineer in each discipline, and chief, Contract Management section at command level; supervisory positions at all AFRCEs; all GM-14/15s in HQ USAF/LEEES/LEEEU/LEEHF, and GM-14/15s in DEMM/DEMP at HQ AFESC at Tyndall AFB, Fla. This requirement will not affect incumbents in these positions, but will be a qualifying factor when these positions become vacant after Oct. 1. If you are not a registered engineer/architect, we recommend that you begin processing your registration documentation so you can obtain your registration in time to compete for these positions.*

Current Phone Numbers — As we call candidates to confirm their availability for referral, we find numbers are not current. When you relocate, or if your phone number and office symbol change, please keep us informed. Send the changes to OCPO/DPCCE, Randolph AFB, Tex. 78150-6421. This will enable us to contact you for referral and training requirements, and ensure that you receive our information letters concerning the program.*

Career Guide — Every registrant in the program will be sent a personal copy of the ESCCMP Career Guide. The guide is a comprehensive publication that fully explains everything you ever wanted to know about the program, including information on Promotion Evaluation Patterns (PEPs), skills codes, penalties/restrictions, training, master development plans, and career patterns.*

Housing Management Positions - The ESCCMP now manages all GS-10 and GS-11 positions in the housing management series, GS-1173. If you are currently or have been a GS-09, ensure that you are registered in the program. If you are not, you will miss the opportunity to compete for these positions as they become vacant.*

AF Form 2675 — Civilian Career Enhancement Programs (Registration and Geographic Availability) — is being changed. The end product will require you to refer to Table 108, available at your CCPO, since no locations will be preprinted on it. Because there are changes to some locations and others have been added, we recommend that you get acquainted with Table 108 now.*
*(OCPO/MPRCE, Mr. Frank, AUTOVON 487-6388)

FIREFIGHTING

Live Fire Training Facilities with Pollution Control — Live fire training is essential to the maintenance of skills for Air Force fire fighters for both crash/rescue aircraft fire suppression and structural operations. This training for many years used unlined earthen pits without serious consideration for the environmental impact. In the early '70s, design and construction of fire training facilities with smoke abatement features was tried with limited success. With the current and anticipated future pollution control requirements, AFESC/RDCF is identifying federal, state, and local environmental requirements, then developing concepts, designs, and establishing the standards of construction for environmentally acceptable Air Force live fire training facilities. (HQ AFESC/RDCF, Mr. Walker, AUTOVON 970-6194)

HISTORIC PRESERVATION

A Workshop on historic preservation management is being planned by HQ AFESC emphasizing federal agency responsibilities, including: archaeological surveys, Section 106 compliance, resource protection, National Register nominations, and interagency cooperation. Designed to present an overview of the program, it is not to develop "instant experts," as such; it is particularly important to middle- and upper-level managers. Attendance is open to all Department of Defense personnel. Other agencies may attend on a space available basis. The workshop is scheduled for the week of Feb. 10-14, at Williamsburg, Va. (HQ AFESC/DEV, Ms. Scott, AUTOVON (970-6236)

OCCUPATIONAL SAFETY AND HEALTH

Asbestos Abatement Program — On the basis of limited data acquired from the sample asbestos surveys, the anticipated cost of the USAF-wide asbestos identification and hazard abatement actions will exceed $400 million. The Environmental Protection Agency (EPA) has recently published revised criteria for asbestos control that should be used as a guide in conducting surveys and programming hazard abatement actions. Copies of *Guidance for Controlling Asbestos-Containing Materials in Buildings, EPA560/5-85-024,* can be obtained by calling 800-924-9065 (554-1404 in Washington, D.C). All bases should obtain at least one copy of this publication for guidance in accomplishing surveys and programming hazard abatement actions. (HQ AFESC/DEMM, Mr. Marcy, AUTOVON 970-6354)

TRAINING

Reorganization of Field 4 Structure — Effective July 1, 1985, the AFESC contingency training site at Eglin AFB Auxiliary Field 4, AFESC Operating Location "E," was inactivated and Detachment (Det) 2 AFESC was activated as the new training site designation. The new Det 2 commander is Maj. Lavon Alston, who came from an EWI assignment in Los Angeles, Calif. Concurrent with the establishment of Det 2, the training division at HQ AFESC/DEOT was reorganized to allow the staff to concentrate more on two major responsibilities; curriculum development and contingency training coordination. The curriculum development function coordinates the necessary changes and revisions to the existing curriculum to keep it up-to-date with current policies, accepted procedures, and state-of-the-art equipment, as well as the development of all new curriculum needed at Det 2. The charter of the contingency training coordination function is to coordinate various avenues for readiness skills training, those being ATC, home station, and the contingency training sites (Det 2 at Eglin AFB, 7002 CEF at Ramstein AB, Germany, the PACAF site at Kunsan AB, Korea, and the AFRES site at Dobbins AFB). The aim is to ensure that all contingency training is consistent, complementary, current, and effective in improving our overall E&S readiness capability.*

Bright Star '85 — A five-man team was deployed to Bright Star '85 from July 27-Aug. 11, to conduct a demonstration for host nation military engineering personnel on USAF techniques for rapid runway repair (RRR) and fiberglass mat fabrication and employment. A 35mm slide presentation, followed by hands-on heavy equipment and mat fabrication and employment demonstrations, was presented over an 8-day period. The individual demonstration culminated in the repair of a pre-dug crater, using a fiberglass mat fabricated on-site by host nation personnel.*

*(HQ AFESC/DEOT, Capt Smith, AUTOVON 970-6134)

Contingency Training Site Coordination — With PACAF's recent establishment of a contingency training site (CTS) at Kunsan AB, Korea, there are now four such training facilities in the E&S community. Since the aim of each CTS is to instruct the wartime skills required by E&S personnel, there is a strong need to ensure that the curriculum being presented by them is consistent. With this in mind, representatives from the HQ AFESC training division (DEOT) visited the USAFE CTS in September. The information exchange that took place during this visit was highly beneficial to both parties and will aid in the overall coordination of contingency training. In addition, plans have been formulated by USAFE to have a few of their course instructors visit the Eglin training facility later this year. As a continuation of this crossfeed effort, HQ AFESC/DEOT visited the new PACAF CTS in December. (HQ AFESC/DEOT, CMSgt. McLeod, AUTOVON 970-6160)

VOLUNTEERS

Volunteers Needed for Civic Action Team (CAT) — HQ AFESC/DEO is seeking highly qualified volunteers for CAT, Trust Territories of the Pacific Islands (TTPI), possessing the grades and AFSCs listed below:

QUANTITY	GRADE	AFSC	TITLE
1	Capt.	5525	Team Chief
1	CMSgt./SMSgt.	54XXX/55XXX	Team NCOIC
1	MSgt./TSgt.	54270	Electrical Technician
3	MSgt./TSgt.	55171	Construction Equip. Tech.
2	MSgt./TSgt.	55273	Structural Technician
1	MSgt./TSgt.	55275	Plumbing Technician
1	MSgt./TSgt.	55370	Engineering Asst. Tech.
2	MSgt./TSgt.	47271	Special Vehicle and Base Vehicle Equip. Supvr.
1	MSgt./TSgt.	90270	Medical Service Tech. (SEI 496 Mandatory)

Outstanding SSgts. may submit for consideration in the following AFSCs only: 551X1, 552X3, and 472X1. TDY period will range from 240 to 252 days. All team members will return to their home station upon completion of TDY. This is a continuing TDY with rotations every 8 months. Members who complete the full TDY period will be awarded a new Overseas Duty Selection Date (ODSD), Short Tour Return Date (STRD), and Date Arrived Station (DAS). (HQ AFESC/DEOP, Capt. Graham or TSgt. Black, AUTOVON 970-6740/44)

COMPUTER TERMINAL

New Symbol — HQ AFESC/SI (formerly AD) is the focal point for all Engineering and Services automation efforts. Please keep us informed of your efforts.*

WIMS/SIMS Acquisition — Validation, evaluation, and live test demonstration phases were completed by the Source Selection Evaluation Board (SSEB) members Oct. 25. Final negotiations are underway and contract award is projected for February, 1986.*
*(HQ AFESC/SI, Col. Aldinger, AUTOVON 970-6455)

OPERATIONS AND MAINTENANCE

First Air Force-wide Plant Operators Conference was held Oct. 7-11 at Kansas City, Mo., in conjunction with the International Convention of the Water Pollution Control Federation (WPCF). Approximately 190 of the 212 attendees were base-level superintendents, foremen, or operators of water or wastewater plants, systems, and laboratories. A highly rewarding aspect of the conference was a full-day inspection of over 285 industrial exhibits on the exposition floor of the WPCF Convention, reflecting state-of-the-art developments in equipment and processes. Target date for the next such conference is June, 1988, at Orlando, Fla., in conjunction with the International Convention of the American Water Works Association. (HQ AFESC/DEMM, Mr. West, AUTOVON 970-6345)

Underground Storage Tanks — HQ AFESC/DEMM is preparing technical retrofit guidance for underground storage tanks. State and federal regulations are being proposed to prevent leaking of buried tanks. The guidance will assist bases in meeting regulatory requirements. The goal is to provide bases with a list of hardware options, and a means of assessing maximum risk. This information will be made available during the first half of 1986. (HQ AFESC/DEMM, Mr. Mumme, AUTOVON 970-6357)

ENVIRONMENT

AFIRM Committee — HQ USAF/LEE has established an Air Force Installation Restoration Management (AFIRM) committee to assist in managing the Air Force hazardous waste site cleanup program. Some of the more important functions of the committee are to:

- Serve as a focal point for transfer of site cleanup technology.
- Review site cleanup plans to assure a consistent and cost-effective approach to site restoration.
- Review and propose program guidance.
- Establish Air Force priority for site cleanup projects.
- Identify R&D projects for support of the Air Force cleanup program.

The committee, chaired by the HQ USAF/LEEV division chief, consists of representatives of the Air Staff, Major Commands, and HQ AFESC. The Air Force regional civil engineers act as technical consultants to the committee. Two general workshops have been held to discuss the concept of operation of the committee and the scope and thrust of the Air Force Installation Restoration Program. Over 100 personnel from various Air Force organizations attended. Various site cleanup projects will be reviewed and critiqued in the future by the AFIRM committee. (HQ USAF/LEEV, Mr. Lindenhofen, AUTOVON 297-6245)

COMPREHENSIVE PLANNING

The Air Force Comprehensive Planning Conference will be held Jan. 27-31 at the Springfield, Va., Hilton, near Washington. Last January, more than 100 attended when HQ USAF/LEEV hosted the first such Air Force-wide conference of its community, natural resources, and environmental protection planners. An early November information letter informed the field and solicited 1986 reservations. Conference focus will be on problem-solving in implementing BCPs.*

Revised Guidelines, Planning Assistance Team (PAT) Program — A HQ USAF/LEE letter of July 26, asks for involvement of AFCOMS and AAFES planning and design representatives on PAT visits. They are asked to help ensure that Commissary and BX construction and alterations are coordinated with overall base development. PATS are also asked to review anti-terrorism planning and make recommendations to improve base security.*

*(HQ USAF/LEEVX, Mr. Lewis, AUTOVON 297-6242)

VEHICLES

Snow removal equipment will be upgraded as a product of a HQ AFESC and HQ USAF/LEE/LETN initiative. An *ad hoc* committee met Dec. 10-12, 1984, at HQ SAC to determine replacement requirements for existing equipment; to review and validate bases of issue, and to develop a standard, viable replacement program. Included in the initiative is a vehicle maintenance engineering evaluation program study of an 8-cubic-yard dump truck, which has a plow and an underbody blade. Changes to the vehicle table of allowance include updating current specifications; replacing the 54,000-pound gross-vehicle-weight class blower with a multipurpose unit of equal capacity rating with additional attachments; replacing the 34,000-lb. GVW rotary blower with a multipurpose unit of equal or higher capacity with additional attachments; replacing the 34,000-lb GVW displacement plow with the 8 cu. yd. dump truck, equipped with blades to plow streets and runways; and replacing some towed sweepers with a hydrostatic front-mounted broom, hydrostatically powered by a skid-mounted diesel engine/blower package, carried in the dump truck body. The towed air-blast sweeper and front-mounted, push-type snow broom will be left in TA 010 for now. Projected cost of these and other improvements total more than $100 million. (HQ AFESC/DEMG, Mr. Munroe, AUTOVON 970-6400)

Air Force Engineering and Services
Senior Officer Assignments as of 1 Dec 1985

General Officers

Maj. Gen. Clifton D. Wright Jr.	HQ USAF/LEE
Maj. Gen. M. Gary Aitkire	HQ AFCOMS/Commander
Maj. Gen. George E. Ellis (SEL)	HQ USAF/Deputy LEE
Brig. Gen. Joseph A. Ahearn	USAFE/DE, Ramstein
Brig. Gen. David M. Cornell	AFLC/DE, WPAFB
Brig. Gen. Roy M. Goodwin	TAC/DE, Langley
Brig. Gen. John R. Harty (SEL)	MAC/DE, Scott

Colonels

A

Aldinger, Richard T.	AFESC/SI, Tyndall
Alexander, Robert M. III	SARPMA/CC, San Antonio
Allen, John J.	BCE, Torrejon
Allison, Thayer W.	BCE, Eglin
Anderson, Gary L.	BCE, Dover
Andrews, Melville M. Jr.	CEG/CC, Kadena
Archer, Curtis F. Jr.	BCE, Arnold
Ardis, Wesley R. *+	Chief of Services, Nellis
Ashdown, Floyd A. +	BCE, Scott
Aulwurm, Henry C.	823 CESHR, Hurlburt
Austin, William F. III	BCE, Osan

B

Bannwart, James L.	HQ USAF/LEEH
Barbeau, Jack W. +*	AFLC/DEHS, WPAFB
Barrows, Charles V.	BCE, Dyess
Beauchemin, Alfred E. III	BCE, Ellsworth
Bechtol, Joseph J.	15 AF/DE, March
Bell, Robert L.	BCE, MacDill
Bittle, Darrell G.	AFSC/ADYQ, Eglin
Boyer, Robert E.	AFESC/RD, Tyndall
Bozarth, Thomas L.	OASD(A&L)I
Branson, Claude L.	8AF/DE, Barksdale
Brooks, David M.	AU/DE, Maxwell
Bull, David E.	BCE, Grand Forks
Byrd, Herman L.	HQ USAF/LEER

C

Canfield, Kenneth W.	BCE, Elmendorf
Cannon, George E. Jr.	ICAF, Wash., D.C.
Carr, Virgil J. Jr. +	BCE, Kadena
Cavender, Dwight B.	AFISC/IGSE, Norton
Choate, John S.	HQ USAF/LEEX
Christiansen, Russell V.	Chief of Ops, Minot
Clark, George C.	BCE, Sheppard
Clark, Walter L.	BCE, Carswell
Clark, Zack C.	BCE, Andrews
Colosimo, John C.	SPACECMD, Peterson
Courter, Robert J. Jr.	BCE, Langley
Cowan, Kenneth W.	AFLC/DEM, WPAFB
Craddock, Dabney S. III	HQ USAF/LEEC
Craig, William R. III *	AFESC/DEH, Tyndall
Crowley, Francis B. III	AFSC/DE-2, Andrews
Cunningham, John H.	820 CESHR, Lake Mead
Currin, David D.	SAC/DEP, Offutt

D

Davidson, Carl L.	AFWL, Kirtland
DeLuca, Robert	BCE, March
DeMartino, Francis A.	ATC/DE-2, Randolph
DeSantis, Dom A. Jr. +	BCE, George
Devaney, James A.	7/8 CES/DE, Ramstein
Dickerson, Warren C.	AFESC/DEO, Tyndall
Donahoe, James B. *	AAFES, Okinawa
Donovan, John S.	BCE, Clark
Dooley, Frank *	AFCOMS/IG, Kelly
Duffie, Boyd T. III	PACAF/DEM, Hickam

E

Eddings, James A.	BCE, Kirtland
Evans, Charles W.	BCE, Tyndall

F

Fiebig, Robert R. Jr. +	AFSC/DEO, Andrews
Fischer, Joseph W. *	AAFES, Munich
Frein, Emil C. +	BCE, Yokota

G

Gates, James L.	BCE, Norton
Gersh, Frederick S.	BCE, Bolling
Gilbert, Robert G.	AFESC/CC, Tyndall
Ginnetti, Mario B.	HQ USAF/CESMET
Glaze, Harry W.	PACAF/DE, Hickam
Goode, Thomas N. *	SAC/DEH, Offutt
Gorges, Thomas W. +	BCE, McGuire
Greenley, Charles H.	DCS/DE, Vandenberg

H

Heem, Max L.	314 AD, Osan
Heinz, Donald A.	ATC/DEP, Randolph
Hicks, Joe L.	HQ USAF/LEEC
High, John T. III	SAC/DEX, Offutt
Hodge, Ralph L.	AFRCE/WR, San Francisco
Holzknecht, William J.	BCE, Little Rock
Honaker, Harry R.	PACAF/DEE, Hickam
Howayeck, Michael J.	BCE, Griffiss
Husbands, Herman H.	USAFE/DER, Ruislip

J

Johnson, Bruce W.	SAC/DEE, Offutt
Judd, Thayne H.	BCE, Hill

K

Kane, Donald A.	HQ USAF/LEEV
Kennington, Roy G. *	AFESC/CV, Tyndall
Kier, Jack W. **	HQ USAF/LEEX
Kimberly, Floyd V.	ASD/DE, WPAFB
Kishiyama, Arthur Y.	ESD/DE, Hanscom
Klumas, Lawrence J.	BCE, Vandenberg
Knutson, Duane E.	SPACECMD/DE, Peterson
Koechle, Edward A.	BCE, Plattsburgh

L

LaFoy, Joe C. Jr. +	BCE, Reese
Leach, Ronald S. *	AFCOMS, Ramstein
Leftwich, George E. III +	BCE, Shaw
Lewis, Richard B.	BCE, Carswell
Lollis, Thomas E.	BCE, Robins
LoPresti, Peter	SPACECMD/DE-2, Peterson
Lupia, Eugene A.	USAFE/DEP, Ramstein

M

Mabry, Everett L. +	AFESC/RDC, Tyndall
Mackie, William A. J.	Attache Duty, Seoul
Maloney, John J. *	MAC/DEH, Scott
Manekofsky, Harvey	CFC, Youngson
Manning, Keith H. +	ATC/DEHH, Randolph
Mayhew, Jason F.	Riyadh, Saudi Arabia
McAuliffe, Michael A.	HQ USAF/LEEP
McCarthy, James E.	USAFE/DE-2, Ramstein
McGovern, Larry E.	BCE, Rhein-Main
Meche, Norwood J. *	ATC/DEH, Randolph
Mitchell, Jarrell S.	HQ USAF/LEEE
Moore, Edward S. II	TAC/DE-2, Langley
Moore, John L.	MAC/DEP, Scott
Mugg, Steven C. +	BCE, Malmstrom
Murphy, George T. *	TAC/DEH, Langley

N

Nay, Marshall W. Jr.	AFIT/DE, WPAFB
Nottingham, Wesley D.	MAC/DEM, Scott

P

Parker, Evans T.	BCE, Chanute
Paul, Herbert D.	ATC/DE, Randolph
Pease, Birney T.	BCE, Davis-Monthan
Pellek, John	SARPMA/CV, San Antonio
Peot, Thomas E. +	Nellis
Pezzullo, Richard E. **	NGB/DE, Pentagon
Pomeroy, Charles W.	TAC/DEX, Langley
Powers, Russell J. +	BCE, Peterson
Prince, Neil E.	AFSC/DEE, Andrews
Pullium, Jerry C.	BCE, Hickam
Pyrz, Anthony +	BCE, Nellis

R

Rader, Richard F.	BCE, Altus
Rochez, Fred	BCE, Edwards
Rodgers, Raymond E. Jr.	SD/DE, Los Angeles
Rogers, Charles E.	919 CESHR, Wethersfield
Romero, George A.	AFRES/DE, Robins
Ross, James W. *	PACAF/DE-2, Hickam

S

Sailer, Allen J.	SAC/DE-2, Offutt
Scambilis, Nicholas A.	BCE, WPAFB
Scheideman, Elton D.	AFRCE/CR, Dallas
Schwartz, Ray D.	SAC/DE, Offutt
Selheimer, Howard E. +	SARPMA, San Antonio
Shealy, Phillip T. +*	Chief of Services, Kadena
Shirley, Henry G.	USAFE/DEM, Ramstein
Sims, William R.	AFSC/DE, Andrews
Sippial, Charles A.	BCE, Williams
Smith, Edward M.	SPACECMD/ACotS
Smith, Jerry A.	AAC/DE, Elmendorf
Sowers, John C.	MAC/DE-2, Scott
Stallworth, Willett R.	USAFA/DE, USAF Academy
Steger, Clifford +	BCE, Grissom
Sundin, Theodore A. **	AFESC/RE, Tyndall
Swint, David O.	USAFA/DFCE, USAF Academy

T

Tanaka, Milton K. +	BCE, Ramstein
Tatum, Walter F. Jr.	PACAF/DEP
Taylor, James W.	BCE, FE Warren
Tessier, Richard J. *	AFCOMS, Hickam
Thomas, Donald J. Jr.	BCE, Homestead
Thompson, Richard A.	BCE, Tinker
Thornton, Robert E. +	BCE, Bentwaters

V

Valder, Stephen N. +***	AFESC/DEV, Tyndall
Verkest, William A.	554 CESHR, Osan
Voss, Charles B. +	BCE, Sembach

W

Wade, James R.	AFESC/DEM, Tyndall
Walters, Roger W.	AFLC/DE-2, WPAFB
Walton, Gary K.	SAC/CSG
Watkins, Church Jr.	ESC/DE, Kelly
Whitman, Walter T. III	AFRCE/BMS, Norton
Whitmire, Jack N.	Air South, Naples
Willett, James G.	BCE, Offutt
Wyatt, Ralph E.	TAC/DEP, Langley

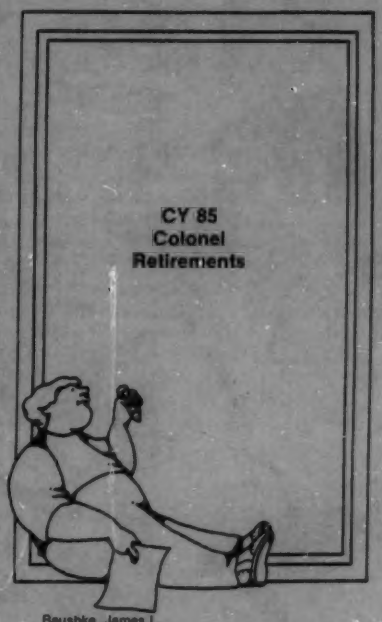
Y

York, Guy P.	USAFE/DEY, Ramstein

Z

Zody, James G. +	Ramstein

* = Services
** = Reserve or Guard
*** = Medical Entomologist
\+ = Colonel Selectee



Baushke, James L.
Bendrick, Frank E.
Benzinger, Richard Jr.
Bush, Roger G.
Cole, Earle R.
Comrie, Andrew B.
DeCarlo, Anthony J.
Forby, Willis E.
Hass, Harvey
Helac, Harry E.
Hubbard, James
Immel, Allen E.
Kent, Richard B.
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Knipfer, Ronald E.
Lewis, Thayer J.
Nethercot, Hubert S.
Penn, James P.
Price, John C.
Rever, Louis G.
Riemer, Frederick J.
Riddle, George M.
Rivera, Danny
Ryan, Michael J.
Staton, William D.
Tate, George R.
Taylor, George R.
Thornal, Leroy W.
Weeden, Ronald J.
Whittenberg, Jean R.
Yancey, Kenneth E. Jr.

General (Jud) Ellis Promoted

Brig. Gen. George E. (Jud) Ellis, deputy director, Engineering and Services, HQ USAF; since October 1984, has been nominated for promotion to major general.

During 5 years as deputy chief of staff, Engineering and Services, for HQ Tactical Air Command, Langley AFB, Va., he facilitated one of the most remarkable turnarounds toward installation excellence in Air Force history. Operating with extremely limited manpower resources, he was able to put together a program including new facilities, renovating existing facilities, and reorienting TAC's more than 20 bases toward liveability, productivity, and meeting or exceeding mission requirements.

During this period, he turned to automated office information systems as a method of offsetting the severely limited manpower available to manage the wholesale increases in workload. His choice of a user-friendly system, in which managers could create their own programming to meet their specific needs, became the basis of the E&S Information Management System.

Even with the challenge of making TAC [illegible] was able to support TAC's commitments [illegible] exercises and deployments to the CONUS and throughout the world. He pioneered innovative management techniques which narrowed the ranking for Prime BEEF and Prime RIBS constituency to those bases having the capabilities to respond, taking into consideration mission commitments and other specific situations affecting each base subject to tasking.

"General Jud Ellis is an innovator and leader with an outstanding background in engineering and services," said Maj. Gen. Clinton D. Wright, Jr., Director of Engineering and Services, HQ USAF. "He justly deserved this promotion. His energy, drive, and sense of purpose will continue to benefit the Air Force and the people of Engineering and Services. He assumes greater responsibilities in the future and increased opportunities for displaying his leadership talents."

General Wright also noted that General Ellis has been a proponent of the growing importance of Engineering and Services, having served as chief of the Civil Engineering and Services Management Evaluation Team (CESMET), commander of the Civil Engineering Center, and first vice commander of the Air Force Engineering and Services Center.

A graduate of the U.S. Military Academy, General Ellis was commissioned in the Air Force in 1950. He earned the master of science degree in Systems Analysis from Arizona State University, Tempe, in 1967, and the master of Business Administration degree from George Washington University, Washington, D.C., in 1972. He completed Squadron Officer School, Maxwell AFB, Ala., in 1961, and the Industrial College of the Armed Forces, Fort Lesley J. McNair, Washington, in 1972.

He moved into civil engineering in June 1959, at Randolph AFB, Tex., after earlier assignments to Bartow AFB, Fla., and Webb AFB, Tex. He next served in Alaska as a site engineer, and returned as a base engineer at Chanute AFB, Ill. He was an adviser to the Vietnamese base commander, Tan Son Nhut AB, Republic of Vietnam, and has served as a special project officer for the Director at HQ USAF. He also served as base civil engineer at Air University engineer at Maxwell AFB, Ala., before moving to the Civil Engineering Center at Tyndall AFB, Fla.

He holds the Legion of Merit, the Bronze Star with "V" device and one oak leaf cluster, the Meritorious Service Medal with one oak leaf cluster, the Air Force Commendation Medal, the National Defense Service Medal with one service star, the Vietnam Service Medal, the Republic of Vietnam Gallantry with palm, and the Republic of Vietnam Medal First Class.

He is married to the former Dorothy Marie Rountree of Winter Haven, Fla. They have two children, Kymlyn and Harold.

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